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A SELF-INSTRUCTIONAL TRAINING PROGRAM FOR CLASSROOM USE

by

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A THESIS
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Dedication

To My Family

ABSTRACT

A classroom self-instructional training (S.I.T.) program was developed and implemented with 81 regular grade 2 students who were divided into a treatment group, control group and material control group. The purpose of this study was threefold. Firstly, a ten lesson classroom (S.I.T.) program was developed and later evaluated by students and teachers as to its appropriateness for classroom use. A second objective was to test the efficacy of this classroom program in teaching students a more reflective cognitive style and subsequently ascertain if this increase in student reflectivity would generalize to other cognitive tasks. Lastly, this study wished to establish if a relationship existed between those students who self-reported using self-verbalizations on a task measuring conceptual tempo (reflectivitiy) and their performance on this task.

Teacher and student ratings of the classroom S.I.T. program were positive as both groups found the program to be appropriate for a grade 2 classroom. Based upon posttest performance on the Matching Familiar Figures (MFF) test, those subjects who received the classroom (S.I.T.) program increased their level of reflectivity without significantly increasing their response time (latency scores) when compared to the control and material control groups. Generalization of treatment effects was demonstrated by these reflective students in the treatment group on a task measuring word recognition. Similarly this reflective subgroup approached demonstrating a significant increase on a task measuring mental ability. (F. 2.86 df 2,75 P<.06). Student self-reports indicated that a relationship existed between self-verbalization and student performance on a task of conceptual tempo. More specifically those students who used self-verbalizations appropriately obtained fewer errors and received higher scores of reflectivity without requiring a significantly greater amount of time to respond (latency) to questions.

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I. CHAPTER 1

INTRODUCTION

The ability of children to be reflective is important. Because reflective children take a greater amount of time to formulate and deliberate the various hypotheses available to them before making a decision, they tend to make effective decisions. Impulsive children on the other hand respond quickly in situations when there is response uncertainty which often results in inappropriate responses being made (Kagan, Rosman, Day, Albert, and Phillips, 1964).

In addition to being superior problem solvers (McKinney, 1975), school children who exhibit a reflective cognitive style enjoy a number of other advantages. Reflective students have greater attention and concentration abilities (Brannigan, Ash and Margolis, 1980; Readance and Bear, 1978), demonstrate superior performances on intelligence tests (Messer, 1976), have better visual organizational ability (Brannigan et al., 1980), adhere to instructions or directions before answering questions assigned by teachers (Finch and Spirito, 1980), demonstrate superior word recognition (Cullinan, Epstein, Silver, 1977), arithmetic achievement (Cathart and Liedtke, 1969), serial learning (Kagan, 1966) and memory (McKinney and Banerjee, 1975). After considering these findings, there is little doubt as to why researchers conclude, that reflective children enjoy greater academic success (Messer (1970a), Finch, Pezzuti, Montgomery and Kempo (1974) and Becker, Bender and Morrison (1978)). Therefore, the acquisition of a reflective cognitive style has a number of positive implications for children and is seemingly a worthy objective of instruction.

A majority of the studies with impulsive children focus upon such clinical populations as the hyperactive child (Gordon, 1979; Meichenbaum and Goodman, 1969), the emotionally disturbed child (Kendall and Wilcox, 1980) or the delinquent and aggressive child (Camp, Bloom, Herbert & Van Dornick, 1977). Few studies (Bryant & Budd, 1982; Robins, Armel, O'Leary, 1975, Parrish & Erickson, 1981) involve training normal impulsive school age students. No studies have been found where reflection was taught to students who were not previously classified as being impulsive.

Additional research is warranted within the school systems. Margolis and Brannigan (1978) maintain that thirty percent of the students in elementary school demonstrate having an impulsive conceptual tempo for their age. Even though some 7 year old children might be classified as being reflective for their age, all tend to be less reflective than older children and are still able to profit from training in becoming more reflective. In a previous study by (McMillan & Janzen, in press), it was found that not only did the impuslive students improve their performance on a measure of impulsivity, but also students who were initially reflective for their age performed at a level expected of the average 10 year old. One would conclude that there are a significant number of students within the regular classroom who could benefit from acquiring a reflective cognitive style.

A number of treatment strategies such as modeling (Nagle and Thwaite, 1979; Ridberg, Parke and Heatherington, 1971), attention training (Brown and Conrad, 1982), visual scanning (Massari and Schack, 1972; Zelniker, Jeffrey, Ault and Parsons, 1972) and cognitive modeling (Meichenbaum and Goodman, 1971) have been implemented to help children become more reflective. A promising intervention strategy, which has recently attracted a significant amount of attention within the literature has been the cognitive behavior modification technique of self-instructional training (S.I.T.).

Although advocates of S.I.T. (i.e., Meichenbaum, 1977) would have researchers, clinicians and educators believe that this treatment program has demonstrated efficacy in reducing impulsivity, others (Hobbs, Moquin, Tyroler and Lahley, 1980; Eastman and Rasbury, 1981) are skeptical about its utility, believing that additional research is necessary to confirm its efficacy. One area of doubt for clinicians is the fact that a number of S.I.T. programs with impulsive children (Bender, 1976; Denny, 1972; Douglas, Parry, Morton & Garson, 1976; Genshaft and Hirt, 1979; Pressley, 1979; Ridberg, Parke & Hetherington, 1971) fail to bring about consistent increases in the impulsive children's performance on a variety of cognitive tasks. However, studies by Douglas (1976), Egeland (1974), Kendall and Finch (1978), Parrish and Erickson (1981) indicate that training a more reflective cognitive style has led to improvements in school performance for those students identified as being impulsive. These studies imply that the overall efficacy of S.I.T programs to be equivocal due to differences in methodology.

An associated area of concern for researchers is the issue that there has been a meagre number of S.I.T. studies validating the generalization of treatment effects within the classroom (Camp, Bloom, Herbert and Van Dornick, 1977; Coates, 1979; Eastman and Rasbury, 1981; Friedling and O'Leary, 1979; Kendall and Finch, 1978; Keogh and Glover, 1980; Meichenbaum and Goodman, 1971; and Robin, Armel and O'Leary, 1975).

Salient issues other than efficacy and generalization of treatment effects require further scrutinization. A review of the literature also indicates that the majority of the researchers in S.I.T., train children individually (Bender, 1976; Kendall and Finch, 1978; Meichenbaum and Goodman, 1971; Parrish and Erickson, 1981) before having them return to their classrooms. A few studies (Egeland, 1974; Snyder and White, 1979; Kendall and Zupan, 1981) employ clinicians to train children successfully in small groups of three to five students outside of their regular classroom. To date, a minimal amount of research has been conducted regarding the efficacy of an individual versus a group application of S.I.T.. Kendal and Zupan (1981) found in their research that individual and group forms of treatment application to be effective in increasing reflectivity. In addition to researchers not being cognizant of the advantages and disadvantages of if and/or when to employ individual or group training programs, no evidence was found within the literature attesting to the efficacy of implementing a classroom S.I.T. program.

Two studies (Bryant & Budd, 1982; Eastman & Rasbury, 1981) report implementing some components of the treatment program within the regular classroom. Because little research is available, Keogh and Glover (1980) assert that there is a definite need for S.I.T. programs to demonstrate ecological validity and efficacy.

In order to determine the efficacy of classroom S.I.T., a training program had to be developed. To date, only one such program developed by Bash, Simmons, Timmreck and Camp (1980) has been designed to teach elementary students problem solving and interpersonal problem solving. A classroom S.I.T. program utilizing materials from the educational curriculum has yet to be constructed to teach elementary students how to become more reflective. If such a program was developed, it could easily be assimilated into the regular program of instruction. Thus it would appear that two areas of need have been identified; firstly, a classroom S.I.T. program to teach children a more reflective conceptual tempo should be made available for the school curriculum and secondly, empirical evidence should be gathered to determine its efficacy.

According to literature reviews on S.I.T. by Kendall and Korgeski (1979) and Hobbs et al. (1980) another significant research question needed to be addressed. These researchers maintain that because self-verbalization is believed to be a critical component of the S.I.T. program, research is necessary to determine if self-verbalizations are being used and contributing to the efficacy of the treatment program. Some studies (Denny, 1975; Robins et al., 1975; Camp et al., 1977; and Eastman & Rasbury, 1981) indicate that the use of self-verbalizations inhibit rather than enhance the subjects' performance. Subsequently, a considerable amount of doubt exists regarding the relevance and ramifications of employing self-verbalizations within the treatment paradigm.

In summary, there are a significant number of regular elementary school aged children who would benefit from the development of a reflective training program within their classroom. The cognitive behavior modification strategy of S.I.T. appears to be one intervention strategy which offers some promise as a treatment program for teaching children how to develop a more reflective cognitive style. However, at the present time, a classroom S.I.T. program has yet to be designed or evaluated in regards to its ability to teach children a reflective cognitive style. Once this S.I.T.

program has been developed, empirical data needs to be collected in order to determine if self-verbalizations play a significant function within the treatment program.

The purpose of this study was threefold: (1) to determine if a classroom S.I.T. program could be designed utilizing materials from the school curriculum and implemented in a regular classroom setting; (2) to see if this program would be effective in increasing the reflectivity of impulsive and reflective grade 2 students as well as determine what effects this increase in reflectivity would have upon student performance; and (3) to establish if there could be a relationship between those students who self-verbalize and the degree of reflectivity demonstrated on a measure of impulsivity.

II. CHAPTER 2

REVIEW OF LITERATURE

A. Impulsivity

A considerable amount of research has been conducted regarding the cognitive style of impulsivity-reflectivity. These constructs described the manner in which a child attempted to solve a problem under conditions of uncertainty when several alternatives were available. More specifically, the reflective child took time to define the problem and then evaluated the hypotheses which were available to him/her before making a decision as to how to respond. On the other hand, the impulsive child responded to the task at hand immediately, thus failing to consider the alternatives available which resulted in errors being made. The construct of conceputal tempo suggested that a negative correlation exists between time of response (latency) and errors. In addition, Rovet (1980) maintained that impulsive-reflective students did not only differ on the factors of latency and error but as a function of the number of response alternatives generated. Moreover, Butter (1979) and Kennedy and Butler (1978) posited that conceptual tempo was consistent across the modalities of functioning and that training in one modality led to effects across the other modalities (Butter, 1978).

In the problem solving process, the impulsive-reflective dimension interfered with stage 2, the selection of potential hypotheses and stage 4, the evaluation of the solutions postulated in the problem solving sequence (Kagan, 1966). It was this author's contention that the impulsive child also neglected to respond appropriately in the other three stages namely in the;

1. definition and comprehension of the problem,
2. implementation of hypotheses and,
3. reporting of solution.

Prevalence

The number of elementary school children who were impulsive was often contingent upon the measure used to determine this construct. The most popular instrument used to measure impulsivity was the Matching Familiar Figures (M.F.F.) test (Kagan, Rossman, Day, Albert and Phillips, 1964). Because this assessment tool used a split median approach for analyzing the variables of latency (time taken to first respond) and number of errors made, 30 percent of the sample was found to be impulsive. Research by Siegelman (1969) and Katz (1971) supported this statistic as being an accurate figure. In an attempt to rule out problems of sample variance, Salkind (1978) developed norms for determining impulsivity scores across age levels. Acknowledging that 30 percent of the children at each age level were impulsive for their age was not the only statistic to consider upon determining the prevalence of impulsivity within the early elementary grade levels.

Because the child's level of reflectivity increased with age, between age differences existed which explains why grade 2 children who were considered to be reflective for their age were more impulsive than their senior grade 4 classmates and thus could benefit from additional training in reflectivity (McMillan & Janzen, in press). Recognizing that within as well as between age differences existed in the degree of impulsive behaviour exhibited among children, causes one to acknowledge that grade 2 children would benefit from acquiring a more reflective conceptual tempo.

Factors Influencing Conceptual Tempo

Conceptual tempo was influenced by the age of child (Messer, 1976) with evidence of children as young as 3 (Toner, Holstein, and Hetherington, 1977) continuing to become more reflective until they have reached the age of 10 (Salkind and Nelson, 1980), whereupon the variables of latency to response continued to decrease and the number of errors became stabilized according to the Matching Familiar Figures test (Kagan et al., 1964). Research by Messer and Brodzinsky (1981) and Messer (1976) found the constructs of reflectivity-impulsivity to be a stable differentiating factor in children's performance across tasks. In regards to the influence of gender, the literature was equivocal. When a difference did exist, it indicated that girls were more reflective than boys of equal age (Messer, 1976).

The relationship of intelligence to conceptual tempo was rather interesting. Previous research indicated that depending upon the type of intelligence test administered, the relationship fluctuated with there being in general, a moderate relationship existing. The variable of errors rather than latency of response became the significant factor for determining the correlation of impulsivity and intelligence (Toner and associates , 1977). When measuring intellectual abilities on the Wechsler Intelligence Scale for Children - Revised, (WISC-R), Brannigan and associates (1980) found that impulsives did not differ significantly from their reflective peers on Verbal, Performance or Full Scale I.Q. scores. They did determine however that impulsive children scored significantly lower on Kaufman's (1975) factors of attention-concentration and visual organization.

Associated with the factor of intelligence was the manner in which impulsives differed from reflectives in regards to their use of speech. Camp and associates (1977) and Messer (1976) reported that reflectives verbalized more and exhibited greater verbal maturity and task specific speech when engaged in problem solving. Meichenbaum and Goodman (1969) maintained that reflectives exhibited more outer directed, self-guiding private speech which resulted in greater verbal control of motor behavior. Similarly, McKinney and Haskins (1980) and Messer (1976) believed that impulsives used less mature and/or systematic strategies than their reflective peers on problem solving tasks. Reese

(1962) described this inadequacy as being a mediation deficiency. This deficiency became critically important to the development of a treatment program, as teaching a child a more mature, task relevant speech pattern should contribute to greater reflectivity. Flavell, Beach and Chinsky (1966) established that another type of deficiency needed to be addressed. They believed that some children exhibited an impulsive cognitive style because they failed to employ a strategy which they had within their repetoire. Thus their impulsive behavior was not attributed to a mediation deficiency but a production deficiency. One other factor must be weighed as well. Camp and associates (1977) found in their study with impulsive aggressive children that, some children demonstrated having a control deficiency which implied that although these children appeared to be utilizing an appropriate verbal strategy to guide their behavior, their verbal responses did not influence their motor behavior (Kendler, 1972).

In summation, if one was to teach children to develop a more reflective cognitive style, these children would not only have to acquire a strategy for problem solving which incorporated task relevant and mature speech but also ensure that this strategy was being implemented.

Other factors which interacted with the impulsivity-reflectivity dimension were anxiety, attentional patterns and frustration (Readance and Bean, 1978). Kagan (1966) and later Messer (1970) maintained that anxiety was an antecedent to a reflective cognitive style as reflective children's feelings of anxiety over making errors was greater than their desire to obtain quick success. Hence, reflectives experienced greater frustration upon making an error which resulted in these children taking a greater amount of time to develop and ponder the merits of the various responses available (Kagan, 1966). In Readances and Bean's (1978) review of the literature regarding the attentional pattern of reflectives on match to sample tasks, they reported that reflective children: 1) took a greater amount of time before responding, 2) attended to more of the relevant information, and 3) employed more systematic search patterns. Subsequently, it would appear critical that when attempting to develop a program to train reflectivity, that the child's anxiety, frustration and attentional patterns would have to be considered.

Reflective children differed from impulsive in a number of other dimensions. Readance and Bean (1978) suggested that reflective children preferred sedentry tasks which necessitated greater amounts of persistence and concentration for mastery. These reflective children shyed away from unfamiliar experiences and social situations which posed danger to the impulsive child. On the other hand, the impulsive child was an easily distracted student who preferred doing less challenging tasks. These researchers also believed that reflectives demonstrated greater abilities on convergent thinking tasks while no differences existed between reflectives and impulsive children on divergent thinking tasks. Sigg and Gargiulo (1980) agreed that impulsive children were not any more creative than their reflective peers.

Upon considering the salient differences which existed between children of a reflective or impulsive cognitive style, one can envision the advantages that a reflective child enjoys in school. Messer (1976) asserted that impulsive school children experienced less academic success. His research indicated that five of the seven grade 4 children who failed a grade within a two year period were impulsive for their age. One reason for this was that impulsive students exhibited inferior abilities on a number of salient factors which influence learning, i.e. memory (Kagan, 1966, McKinney and Bennerjee, 1975), attention and concentration (Toner and associates 1977), on-task behavior (Bornstein & Quinville, 1976), visual organization (Toner and associates 1977), problem solving (Ault, 1973, McKinney, 1975) and following directions and instructions (Finch & Spirito, 1980). Therefore, it was not surprising to find that impulsive children obtained poorer performances in the academic subjects of writing (Robin and associates 1975), spelling (Parrish & Erickson, 1981), reading (Becker and associates , 1978; Cullinan, Epstein & Silver, 1977), reading comprehension (Parrish & Erickson, 1981) and arithmetic (Cathcart & Liedtke, 1969; Becker and associates , 1978). However, Kennedy and Butter (1978) astutely reminded clinicians that the inability to read, as would be the case in all these subject areas, can not only be viewed as a problem of impulsivity but as one of inability.

Problems of impulsivity did not only impede the performance of the regular classroom child, but of children deemed to be learning disabled. A study by Sigg and Gargiulo (1980) supported this position in that they found learning disabled children to be more impulsive than regular stream students. Similarly, Quay and Weld (1980) indicated in their research that 8 year old learning disabled children were more impulsive than normal 8 year old children. According to the test results from the M.F.F. test, Nagle and Thwaite (1979) found that reading disabled students differed from normals on the dimension of errors made, and not on latency to first response. They did not believe that learning disabled students were more impulsive but rather that they used poor strategic behavior in processing information. Although one could argue that the failure to develop a strategy was a significant deficiency of the impulsive child. In summation, it was not surprising to read a statement by Becker and associates (1978) that special educators and school psychologists are interested in the cognitive dimension of reflectivity-impulsivity with learning disabled children.

B. Measures of Impulsivity

A number of psychometric instruments have been identified as measures of the conceptual dimension of reflectivity-impulsivity. The most widely used instrument in the literature reviewed was the Matching Familiar Figures test (Kagan et al., 1964). The child is asked to match from an array of six similar looking pictures which picture matches the standard. Time to first response and the number of errors made is recorded. The shorter the latency period and the greater the number of errors made the more impulsive was the student. This instrument has received criticism from a number of researchers (Block, Block & Harrington, 1974; and Egeland & Weinberg, 1976), who expressed concerns about its test-retest reliability, predictive and concurrent validity.

Not all researchers share the same skepticism about the M.F.F. test. Egeland and Weinberg (1976) maintained that researchers should not prematurely reject the M.F.F. test until additional psychometric investigations have been conducted. Several events have transpired which have added credibility to this instrument. The first was the development of norms (Salkind, 1978) which allowed researchers the opportunity to make comparisons between their sample population and the general population. A critical review by Becker and associates (1978) established that the test-retest reliability as well as the concurrent and predictive validity were low. Loper and Hallahan (1980) found the M.F.F. test to be a moderate predictor of reading achievement. They also established that the poor test-retest reliability was a result of children changing categories on the M.F.F. test which they believed could be reduced by employing an ordinal scale for measuring the construct of impulsivity-reflection. The development of an ordinal measure was achieved by Salkind and Wright (1977), who developed a formula for determining an impulsivity index from the M.F.F. test. The impulsivity index was determined by subtracting the child's z latency score from his/her z error score. This mathematic computation allowed the subjects performance to be placed on a continuum. The establishment of norms for a normal population as well as an impulsivity index (Margalis, Skipton & Brannigan, 1980) contributed to making the M.F.F. test a more promising instrument. However, this was not to suggest that researchers should not exercise caution when utilizing this psychometric instrument.

Occasionally games were used as a means of measuring impulsivity. One game which required the child to exercise a reflective cognitive strategy was "Perfection." In this game the child had one minute to correctly place 25 geometric figures into their correct space before the placement board "popped up." The child who worked in a carefully controlled and planned manner would be able to correctly place a larger number of the shapes, thus demonstrating a more reflective performance.

Other instruments had been used to measure conceptual tempo. These included the Porteuse Maze, Ravens Progressive Matrices (Margolis, Skipton & Brannigan, 1980), 20 questions game as well as various subtests from the WISC-R (i.e., Picture Arrangement, Block Design, Digit Span and Coding). Several teacher rating scales have also been produced which vary in their degree of validity and reliability. The Connor's Teacher rating scale was one of the more popular rank order questionnaires used. This assessment instrument had been standardized. Other teacher-rating instruments such as the Impulsive Classroom Behavior Scale (Weinreich, 1975) had yet to receive empirical credibility. One would conclude upon reviewing the assessment instruments available that caution should be employed by researchers when using them to assess conceptual tempo.

In summation, a considerable amount of literature has been written regarding the cognitive style of impulsivity-reflectivity. It is apparent from this review that children who exhibit an impulsive conceptual tempo experienced less academic success than their reflective classmates. Furthermore, it appears that both reflective and impulsive elementary school children would benefit from training in reflectivity. Because of the negative ramifications and the prevalence of young children exhibiting an impulsive cognitive style, educators, clinicians and researchers have been developing programs to help children acquire a more reflective cognitive style. One intervention strategy in psychology which is presently addressing this problem is the cognitive behavior modification strategy of self-instructional training.

C. Cognitive Behavior Modification (C.B.M.)

Pressley (1979) asserted that the techniques of verbal rehearsal and behavior modification (etc.) were not new, but their use to bring about changes in cognitive strategies was relatively recent. This focus upon cognitive change was unique. In Reid and Hresko's (1981) opinion, C.B.M. programs involved three factors. These included: 1) the individual understanding the process involved in behavior change, 2) the emphasizing of self-treatment to the extent in which the person monitors, instructs and controls their behavior and lastly 3) the training of more adequate strategies for interacting with the environment. Kendall and Hollon (1979) conceptualized the cognitive behavior modification paradigm as being a marriage or bidirectional movement whereby the demonstrated efficiencies of behavior modification principles have incorporated the cognitive activities of the client with the purpose of bringing about therapeutic change. Thus Hollon and Kendall (1979) theorized that cognitive processes could mediate motoric events and/or subsequent cognitive events and could elicit autonomic events. Cognitive-like behavioral processes may be either respondents under stimulus control or operants under consequent control. (p.449)" However, Meichenbaum and

Asarnow (1979) argued that the development of metacognitive skills would create problems when attempting to explain self-instructional training within an S-O-R framework. Another force in the literature, Bandura (1977) maintained that not all motoric, cognitive or affective events could be attributed to environmental events, but that there was an interaction between environmental, person and behavioral variables. He posited that people's cognitions and affect played a major role in shaping the environment. It would appear that researchers have yet to comprehensively determine and agree to the role of cognitions in changing and maintaining human behavior.

One of the principle catalysts behind the movement of the Cognitive Behavior Modification strategy of S.I.T. was Dr. D. Meichenbaum (Meichenbaum, 1977). This researcher maintained that the theoretical foundations of this intervention strategy were based upon social learning theory (Bandura, 1969) and the work of Soviet psychologists (Luria, 1959, 1961; Vygotsky, 1962).

Social Learning Theory

A significant force in the swing towards cognitive constructs in behaviorism was the theoretical framework which resulted from the work of Bandura (1969). This researcher coined the phrase "reciprocal determinism" which emphasized that there was a complex and continuous interaction between the organism and its environment. The individual was no longer considered a passive product of his/her environmental influence, but as an active participant in his/her own complex development.

The overall influence of cognitive processes did not cease here. A proposal for the effective treatment of covert events through operant principles was presented by Homme (1965). He assumed that covert events could be viewed as responses and because of this, explained how these responses could be changed. Private events were termed "coverants" which was a contraction of the constructs covert and operants. It was maintained that a technology of controlling coverants needed not to be impeded by the problems of detecting responses or of identifying reinforcers which followed their occurrence. These would be readily detected by the individual who experienced the coverant. All that remained was the identification of the consequences which followed the event. Homme's (1965) research implied that internal or private events could first be identified by the individual and secondly used to control behavior.

Additional research by Kanfer and Phillips (1970) and Mahoney and Thoresen (1974) emphasized that self-regulatory processes had a significant influence upon human behavior. The support for self-control techniques in behavior change presented an alternative position from that of the radical behaviorists philosophy of external environmental determinism.

Research in self-control which focused upon children's self-mediated cognitive strategies was increasing. Kanfer and Phillips (1970) demonstrated the important role of children's cognitive strategies in enhancing self-control on such tasks as delay of gratification and resistance to temptation. An associated influence was the research on verbal mediation. Learning to use task appropriate verbal mediators was viewed as involving the separate phases of comprehension (Bem, 1971), production (Flavell, Beach and Chinsky, 1966), and mediation (Reese, 1962). These researchers believed that children failed to gain self-control of their behavior when a mediating phase was deficient. Consequently because of this purported mediation "deficiency," a training program designed to improve task performance and engender self-control for impulsive children, would require explicit training in the comprehension of the task, the spontaneous production of mediators and the use of such mediators to control behavior. These procedures would be critical to the implementation of a S.I.T. program for impulsive children.

Soviet Psychology

The impact of Soviet psychology upon the development of S.I.T. was extremely significant. Based upon a number of studies demonstrating how language influenced the child's ability to control his/her behavior in bulb-squeezing tasks, Luria (1959, 1961) described a three stage process which explained how the child eventually used verbalizations to control his/her behavior. During the first stage, the child 0-2 years of age had his/her behavior influenced by his/her environment and past experiences. Therefore, neither external speech nor the child's own speech could produce controlled responses. Between the ages of 3 to 4, the child entered the second stage. Vygotsky (1962) used the term functional reorganization to describe this period when the child's overt language began to control his/her motor behaviors. Through the period from 4 to 6 years the child progressed to the final stage. This period was distinguished from stage 2 (Luria, 1959) as the directive role of speech which incorporated the semantic aspect of speech and this aspect became dominant. As Luria (1961) stated, "the regulating function was steadily transferred from the impulse side of speech to the analytic system of elective significative connexions which were produced by speech" (p59). Subsequently, words were responded to as a function of meaning rather than as a.supplementary physical stimulus as was the case in the second stage of development. Of particular importance during the final stage was the transference from overt speech to covert speech which served as the highest form of intellectual speech that the child developed. Some speculation exists as to the regulatory role of speech. According to review of the literature, by Pressley (1979) replications of Luria's (1959, 1961) studies were not always confirmed by North American researchers causing one to agree with his concluding comment, that additional research was needed to establish the regulatory role of self-verbalizations and control of motor behavior.

Acknowledging that self-verbalizations were critical to the S.I.T. paradigm, the Soviet's position regarding the relationship between language, thought and speech should be understood. First, language as speech represented a form of cognition (Meichenbaum, 1976), just as memory was a form of cognition. According to Vygotsky (1962), speaking and thinking developed as two separate or parallel processes which became interrelated when a word or element of the speaking system became associated with an element of the thinking system. The interrelationship of these two processes was hypothesized to yield a third process, language.

Two prominent Soviet psychologists, Luria (1959) and Vygotsky (1962) stated that there were two processes which enabled man to employ language. The overt process entailed the external verbalization of language while covert speech was considered to be overt speech that had gone "underground". Vygotsky (1962) believed that as egocentric speech went underground it became abbreviated and eventually lost its structural similarity from the social speech practiced. Once the individual had functioned for a considerable amount of time at the intrapsychological plane (self-regulatory function) on a task, his/her egocentric speech (private speech) would not be evident.

Altering Cognitive Structure

According to Mahoney (1974) and Meichenbaum (1977), the utilization of an internal dialogue has the significant effect of altering the individual's cognitive structure. Meichenbaum (1977) explained that what the person verbalized to himself/herself about experienced behaviors determined whether he/she accepted the results as evidence which could then alter his/her beliefs or cognitive structure. A person's statements provided an explanation of how the internal dialogue could be influenced and adjusted to fit the person's cognitive structure. Sokolov (1972) reiterated the importance of the individual's system of beliefs as they gave rise to a particular set of self-statements which become part of a meaning system. He believed that, when altering behaviors, in addition to considering the person's internal dialogue, it was necessary to establish how the inner speech fit within the individual's cognitive structure. Subsequently, during the training program it would be critical to not only understand how the students' self-verbalizations influenced their impulsive behavior but also their cognitive structure.

Zone of Proximal Development

Of additional importance to the explanation of how the child gained control of motor behavior, was the impact that the transition from other to self-regulation had for helping the child to function at his/her ultimate level. Vygotsky

(1978) established that there were two developmental levels. One was the child's actual developmental level. This level represented the extent to which the child's mental functions had been established as a result of certain already completed developmental cycles. The second developmental level was the child's potential development which reflected the level achieved through adult guidance or collaboration with more capable peers. Therefore, the zone of proximal development subsumed the difference between these two levels of development. Because of this zone, children could be taught a variety of tasks that exceeded their own exhibited capabilities. This theoretical principle offered an added dimension for examining the cognitive style of children. Recognizing that children became more reflective as they matured causes one to hypothesize that by accepting that the zone of proximal development existed, one could teach not only those children who were impulsive for their age to become more reflective but possibly teach those children who were reflective for their age to become even more reflective. In a preliminary study by the author this has been found to happen (McMillan & Janzen, in press).

This dynamic approach to learning has had significant implications for the diagnosis of learning disabilities, and the design of remedial programs (Steinberg, 1981). Specialists were interested in the child's potential to learn as opposed to his/her exhibited completed stage of development. Feurenstein (1979) believed that through mediated strategies of intervention, the child's cognitive repertoire could be modified. Therefore training programs today focus not only upon teaching children the necessary skills to complete the task but incorporate metacognitive training strategies (Meichenbaum & Asarnow, 1979) which could teach children how to learn. Meichenbaum (1980a) maintained that this shift in training was critical to the development of a successful S.I.T. program.

Therefore, if one was to teach children to become more reflective, this objective could be more readily attained by understanding that the child's potential level of performance could be reached through the guidance of adults and/or more competent peers who provide the child with an example of the skills necessary as well as knowledge (metacognitive training) about how to learn. Self-instructional training was an intervention strategy which incorporated these theoretical principles when altering the behavior of children.

Metacognition

The understanding and incorporation of metacognition to the realm of cognitive-behavioral treatment strategies has been critical. Meichenbaum (1980b) described metacognitions as being "overt cognitions about cognitions or the executive decision making processes in which the individual must both carry out cognitive operations and oversee his or her own progress" (p.85). The significance of metacognitions to understanding those children who enjoyed academic success and those who did not had been alluded to by Nagle and Thwaite (1979). They believed that normal and learning disabled students differed not so much because they were impulsive due to differences in the latency period to their response to questions but as a result of failing to employ strategic problem solving approaches. In other words, their inability to know how to learn played a critical role in their ability to learn. Meichenbaum (1980a) asserted that while cognitive behavior modification clinicians worked at teaching children how to use cognitive strategies to obtain self-control, research in memory (Kreutzer, Leonard and Flavell, 1975), attentional processes (Miller and Bigi, 1979), reading (Meyers and Paris, 1978),and self-control (Mischel, Mischel and Hood, 1978) had been verifying the importance of metacognitions. In previous attempts at utilizing S.I.T. (Meichenbaum and Goodman, 1971), the implementation of metacognitions was not emphasized within the training program and subsequently many studies (Camp and associates , 1977; Coates, 1979; Eastman and Rasbury, 1981; Genshaft and Hirt, 1979; Meichenbaum and Goodman, 1971) did not demonstrate generalization of treatment effects. Similarly, in the area of instruction, Belmont and Butterfield (1977) reviewed 114 studies which involved the use of cognitive instruction which failed to indicate generalized results. On the other hand, Belmont, Butterfield and Fenetti (1981) reviewed six studies involving teaching executive cognitive skills that resulted in a transfer of treatment effects. Because of these successes, Meichenbaum (1980a) proposed ten suggestions for how one could teach thinking to enhance generalization of treatment effects. These recommendations have been incorporated within the classroom S.I.T. program designed by the researcher for the purpose of this study.

D. Self-instructional Training

Upon incorporating and integrating previous research, Meichenbaum and Goodman (1971) developed a training program to teach children how to become more reflective. The basic training procedures of this program have remained, with a shift in emphasis emerging as research findings dictated. The initial training program consisted of three components which included, 1) teaching the child a strategy, 2) using self-instructions (self-verbalizations) to guide his/her behavior,and lastly, 3) cognitive modeling.

The strategy component of the program involved the child self-verbalizing to himself/herself a series of questions which formed the procedure by which the child solved the problem. The questions asked by the child in the Meichenbaum and Goodman (1971) study to control impulsive children centered upon 1) defining the problem, 2) focusing attention and response guidance, 3) self-reinforcement and 4) self-evaluative, coping skills and error correcting options (Meichenbaum, 1977, p. 32).

In addition to self-verbalizing these questions, the child learned from observing the model how to use self-verbalizations to guide and control his/her behavior. Thus the child learned how to ask questions about the nature and demands of the task, to answer these questions, to use self-instructions as a form of self-guidance and lastly to use self-reinforcement (Meichenbaum and Goodman, 1971).

The following dialogue serves as an example of how a child would use self-instructional training to correctly complete a match to sample task. In this example, the child was attempting to find the one airplane from 6 alternatives which matched the standard.

> "O.K., what is it that I have to do? You want me to pick the picture of the one airplane, from these six airplanes, that looks just like the one at the top. I will have to go slowly and carefully. Now, I will begin by looking at one portion of the plane from the top and comparing it to the six on the bottom. Hey, that's a great way to do this. I'll start by counting the engines. The plane at the top has four, so let's see how many engines the bottom plane has. This plane has four engines so it might be this one, but this plane has only three engines so it can't be this one. Boy, this is not hard to do. Now the other four planes have four engines. Whoops, I made a mistake. This last plane doesn't have four engines. Making a mistake is all right because I can go back

> and correct it. Remember, if I go slowly and look at each plane carefully, I won't make any mistakes."

Through the process of elimination this procedure is continued until the child finds the plane that matches the one at the top. At this time these summary self-instructions could be verbalized completing the cognitive modeling procedure.

> "There, I did it, I found the plane that looked just like the one at the top. I did a good job. I wonder what I could do next time to help me do better. Oh, I know. The next time I'll cross out the pictures that aren't the same as the airplane at the top. This will help me remember which planes are different."

Cognitive modeling was the technique used to teach the child how to effectively employ the strategy through self-verbalization. The following six steps comprised the cognitive modeling procedures.

STEP 1: Once the child was familiar with the important components of the strategy, the trainer modeled, verbalizing overtly how to use the strategy to complete the task.

STEP 2: The child performed the task while the experimenter instructed the child overtly.

STEP 3: The child then repeated the experimenter's instructions overtly while doing the task.

STEP 4: The child performed the task himself/herself using his own self-instructions to guide his behavior.

STEP 5: The subject performed the task whispering the self-guidance instructions softly.

STEP 6: The child engaged the task using covert self-instructions.

The progression from one step in the training package to the next was determined when the subject had successfully completed the required procedure. When necessary, the trainer returned to step one if a child was continuing to make errors. As soon as the subject had successfully completed the training sequence for the designed task, the entire process was repeated with the assigning of a new task. Each successive task increased in its rate of difficulty as the training session progressed.

The aforementioned information provided examples of the three components of a self-instructional training program. Upon achieving this, a more comprehensive understanding of these three components was obtained through a review of the literature.

Cognitive Modeling

A salient component of the S.I.T. paradigm was the technique in which the strategy was taught. Meichenbaum advocated cognitive modeling procedures which focused upon modeling cognitions to the child. More specifically, cognitive modeling according to Meichenbaum and Asarnow (1979) involved the modeling of cognitive strategies, critical thinking processes and coping self-statements required for the completion of a task. It was their contention that it should not be equated with mimicry or superficial imitation but rather involved an active component whereby the child helped by 1) analyzing his or her own cognitions, 2) contributing to the model package, and 3) reacting to the model.

It had been established in the literature that the strategy of modeling a reflective cognitive style could be effective in helping impulsive children become more reflective (Denny, 1972; Ridberg, Parke & Hetherington, 1971). Recognizing that a modeling procedure could successfully reduce impulsivity, what advantages would there be to using cognitive modeling? Meichenbaum and Goodman (1971) combined modeling with a cognitive self-guidance strategy to investigate its effect upon problem-solving of impulsive second graders. They found that covert modeling (modeling plus a cognitive self-guidance strategy) was more effective than a "modeling alone" group. In addition, a secondary component of this study indicated that a group of impulsive children who utilized cognitive modeling plus self-instructions performed superior to the cognitive modeling group. Furthermore, a review of the literature on social problem solving by Urbain and Kendall (1980) reported that observational learning (modeling) did not produce as significant a degree of change as did those studies which incorporated both modeling and behavioral rehearsal. The child in a S.I.T. program did enjoy the added advantage of rehearsing both overtly and covertly the strategy modeled by the trainer.

Self-instructions

Another significant component within the self-instructional training program was the utilization of self-instructions by the child. A question of paramount concern for researchers was, What role did self-instructions play in the treatment program? Firstly, the implementation of self-instructions encouraged the student to engage in a thinking strategy which he/she might not have previously used or were unable to use. Meichenbaum (1974) coined the phrase "cognitive prosthesis" in reference to the fact that these self-instructions could facilitate the individual's performance. In addition, they could change behavior as well as serve as a reminder to the child to use the mediation skills that he/she had learned (Meichenbaum and Asarnow, 1979). The use of self-instructions had not always had positive affects according to Toner (1981). His research indicated that children will use self-verbalizations but the content as well as the strategy implemented by the child to achieve success on a task were sometimes inappropriate. However, Meichenbaum (1980c) asserted that these inappropriate statements served an important function as they provided the trainer with valuable information as to the child's cognitions and metacognitions. The trainer was now able to ascertain the problem and appropriate changes could be made through cognitive modeling.

Caution must be exercised by trainers who force subjects to employ self-questioning procedures as this can result in a decrease in performance if this self-verbalization interrupts the automatic processing of the child (Hall, 1980). Central to this problem was research by Denny and Turner (1979), and, Ridberg and associates (1971) who found that once a child had mastered a task and progressed to the covert stages of self-verbalization, a reversal back to overt self-verbalizations when completing a task resulted in a decrement in performance. Subsequently, researchers should avoid forcing subjects to overtly self-verbalize while completing tasks which have been mastered and covert speech been utilized.

In addition to the variable of task proficiency, the child's age served as an intervening factor as to whether success through self-verbalization would be obtained. Developmentally, the child initially used overt verbalizations to guide his/her behavior prior to advancing to covert self-verbalization. Younger children exhibited a superior performance when using overt verbalization, while older children would experience a decrease in performance.

The child's level of intellectual functioning influenced the type of self-verbalizations used. Ridberg and associates (1971) found that grade four children with high intellectual quotients did not benefit as much from overt verbal cues as did low level subjects because the more intellectually advanced children utilized speech more frequently.

Another important factor to be remembered by practitioners according to Karoly and Dirks(1977) was that the child's self-verbalizations must precede the task at hand rather than follow if self-control was to be maximized.

The training sequence used to teach self-verbalization had an influence on the amount of regulatory control exhibited. Fry and Preston (1979) demonstrated that the overt to covert training procedures were more effective than training in either overt or covert self-verbalizations in maintaining resistance to temptation. They also established that children who self-verbalized frequently, achieved greater success as compared to those children who seldom used self-verbalizations to control their behavior. In an independent study, Fry (1978) reported that high self-verbalizers verbalized longer achieving greater resistance to temptation. The quantity of private speech also tended to increase depending upon the difficulty of the task (Murray, 1979).

Independent of the factor of quantity, the quality of self-verbalizations used differed among individuals. Impulsive children tended to use more immature speech when compared to aggressive children (Camp, 1977). Although Camp (1977) found that aggressive boys used covert speech, the quality was immature and nonfunctional with regards to gaining regulatory control of behavior.

Research on resistance to temptation with young children contributed valuable information in regards to the content of the self-verbalizations used to enhance self-control. Mishel and Patterson (1976) found that temptation inhibiting responses and reward-oriented verbalizations improved self-control, whereas self-verbalizations diverting the child to focus attention on the task to be avoided, had negligible effects. Hartig and Kanfer (1973) established that irrelevant inhibitory self-verbalizations were not as effective as positive verbalizations, negative verbalizations and verbalized instructions not to touch a toy. Lastly, Toner and Smith (1977) maintained that having children verbalize the goodness of waiting resulted in better self-control. However, in this study, irrelevant verbalizations also were effective in delaying gratification. Upon completing a review of this literature, Pressley (1979) reported that instructions to verbalize a temptation inhibiting plan to be most effective. Therefore, for the purpose of this researcher's classroom training program, the self-verbalization of positive, rewarding and relevant statements to work in a reflective manner should engender greater self-control, reducing impulsive behaviors.

Success of the training program was also contingent upon the trainer ensuring that the child utilized the appropriate self-verbalizations which would then serve to enhance rather than prohibit performance. If the child experienced problems employing the more sophisticated covert self-instructions, the trainer encouraged the child to return to overt self-instructions (Kendall and Wilcox, 1980). This served the two-fold purpose of providing insight into the nature of the self-verbalizations being used as well as permitted the child an opportunity to gain greater skill proficiency before advancing to the more progressive stage of covert self-verbalizations.

The self-verbalizations expressed by the child served another significant function within the treatment strategy. That was, through the self-questioning process, the child used his/her self-verbalizations to self-monitor, self-evaluate and self-reinforce his/her performance while completing the task. These self-control techniques were critical in assisting the child to not only improve his/her performance but ultimately achieve the optimal goal of bringing his/her impulsive behaviors under his/her immediate control.

In summation, when attempting to implement a S.I.T. program, it was imperative that the clinician remain cognizant of the influence of the child's age, level of intelligence, and degree of task difficulty, on the type of self-verbalizations used. In addition to these factors, the clinician had to monitor the quantity, quality, content and modes of self-verbalizations being used by the child in order to facilitate their regulartory control of behavior.

Developing a Strategy

Once the child had been taught how to use self-instructions, it was important that these self-verbalizations be organized into a meaningful strategy. McKinney and Haskins (1980) maintained that competent elementary school children developed a plan which allowed them to gather and process information in a systematic manner which thereby increased the likelihood of them experiencing success. If impulsive children utilized a plan when completing their school work, they too could benefit. According to Meichenbaum (1980c), the implementation of a strategy for completing school work would lead to greater transfer of success across different tasks, situations and subjects. Establishing a rationale led to the child acquiring a cognitive structure which served to enhance the child's self-control (Pressley, 1979). Implementing a strategy for impulsive children also served to increase the child's performance (Reid & Hresko, 1981) as this caused the child to reflect and organize his/her behavior, thus serving the additional advantage of improving his/her focus of attention.

Pressley (1979) and later Schleser, Meyers and Cohen (1981) cautioned that in order for this plan to be effective, it must be congruent with the child's cognitive development. In addition, the efficacy of S.I.T. would be enhanced(Reid & Hresko, 1981) once the child had knowledge of what, when and how to apply the strategy. Moreover, Meichenbaum (1980c) asserted that the child had to be knowledgeable as to how to adjust the strategy to new situations. These suggestions were critical to remember when developing a self-instructional training program for children.

In summation, a self-instructional training program involves teaching a child a strategy or plan as to how to use self-instructions to help control and guide his/her behavior. These self-instructions also incorporated the child engaging in self-monitoring, self-assessment and self-reinforcement procedures while he/she completed the task. The procedure used to teach self-instructional training to these children was cognitive modeling.

E. Review of (S.I.T.) Studies

Individual vs Group Application

Research in the area of self-instructional training is still in its infancy as this intervention strategy has only begun to gain recognition from clinicians, educators, social workers and psychologists during the past decade. Previous research has emphasized individual self-instructional training programs (Bornstein & Quevillan, 1976; Camp and associates , 1977; Genshaft & Hirt, 1979; Kendall & Finch, 1978; Kendall & Wilcox, 1980; Meichenbaum & Goodman, 1971; Nelson & Birkimer, 1978; Parrish & Erickson, 1981; Ridberg and associates , 1971; & Robin and associates , 1975) due to the expressed advantage (Meichenbaum, 1977) of providing individually tailored programs for each child.

Some studies (Coates, 1979; Egeland, 1974; Kendall & Zupan, 1981; Snyder & White, 1979) involved training children in small groups with one or two trainers working with each group. In a recent study, Coats (1979) trained children who were unable to control their disruptive behavior (in groups of 4) for eight 1/2 hour sessions. The cognitive self-instructional group's performance did not demonstrate significant but rather small improvements when compared to a control group. However, a more recent study by Kendall and Zupan(1981) compared the performance of a group S.I.T. program to a group non-specific program (control group) and a S.I.T. program which trained subjects individually. Although all three treatment conditions exhibited improved performances on (M.F.F.) test, Means End Problem Solving, and a self-control rating scale, the group S.I.T. and the individual S.I.T. programs were more effective than the attention control group. Therefore, achieving improved levels of self-control in a group training program offered optimism for future studies.

The promise for developing group training programs became even greater upon reviewing other studies which reported some treatment efficacy. Egeland (1974) used co-therapists to train impulsive children in groups of four to employ more effective scanning strategies. Another study by Snyder and White (1979) involved training behaviorally disturbed children in groups of five. Despite some treatment efficacy being demonstrated by group S.I.T. programs, the evidence was marginal. This explained why Genshaft and Hirts (1979) recommended that the effects of group training programs required further investigation. Because research evidence was almost non-existent regarding the efficiency of classroom training programs, an even greater amount of speculation existed as to whether self-instructional training could be effectively implemented with a classroom of children.

Advantages of Group Training

The implementation of a group (S.I.T.) program was believed to offer a number of advantages to treatment efficacy. Henker, Whalen and Hinshaw (1980) were so convinced of the advantages of using groups when attempting to employ cognitive training programs that they trained students in triads. These researchers believed that the specific advantages of groups included: 1) the influence of peer monitoring, 2) the opportunity through interaction of observing the attributes of other group members, and lastly 3) the benefits from the prompting of peers and trainer which help to increase self-control as the child takes personal control and responsibility for behavior.

In addition, Keogh and Glover (1980) commented that there was a "spill over" effect of the treated subjects which for this particular study would facilitate each student acquiring a more reflective cognitive style from his peers. Acknowledging as Pressley (1979) did in his review of increasing self-control through cognitive interventions, that having a child serve as a self-control model for another child "produced increases in the model's subsequent self-control when later confronted with temptations" (p.338). The modeling of self-verbalizations by peers might offer a more effective way to introduce the use of self-verbalizations than by simply instructing the child to do so. Peer modeling also served the additional advantage of children learning to utilize the appropriate self-instructions and strategies used by their more successful, reflective peers. Lastly, because in this study the classroom training program approximated the setting in which generalization was desired, treatment effects should generalize to the regular classroom more readily. Thus the advantages of a group training program make it a promising variable to incorporate within the intervention strategy of self-instructional training.

Recognizing that to date there had been a minimal amount of research published attesting to the efficacy of classroom self-instructional training programs and that the training of children in groups offers a number of advantages, an objective of this research study was to determine if a classroom S.I.T. program could be effective in reducing the impulsive behavior of grade two students.

Classroom S.I.T. Programs

Because the development of a classroom S.I.T. program was critical to the focus of this study, a brief discussion of classroom training programs for elementary school children was valuable. Firstly, the implementation of classroom training programs for elementary school children was not a unique experience within elementary education. Two rather promising programs which had been designed to help elementary school children develop positive self-concepts were Developing Understanding for Self and Others (DUSO) (Dinkmeyer & Dinkmeyer, 1982) and Magic Circle (Palomaries & Bull, 1977). More specific to the purpose of this study, there had been a limited number of individual self-instructional training programs developed which could be obtained from the authors upon request for training purposes. Furthermore, this literature indicated that only one program (Bash, Timmreck & Camp, 1980) had been published for classroom use.

The Camp and associates (1977) program was being implemented within the school system in Denver, Colorado. This program incorporated standard activities which focused upon teaching problem solving and interpersonal problem solving to elementary aged school children. These authors suggested an informal method for evaluating student progress within the program. However, to the best of this author's knowledge little psychometric evidence existed attesting to the efficacy of the program. Subsequently, this researcher believed that there was a need to not only develop a self-instructional training program for the classroom but also a need to develop a classroom program designed to teach impulsive children how to become more reflective.

Prior to developing a S.I.T. training program for children, a number of prerequisites should be recognized. To begin, Copeland (1981) pointed out that knowledge of the child's cognitive maturity was pertinent as it would influence the type of self-instructions used within the treatment program.

Another subject variable to weigh was the child's attributional style. Because S.I.T. incorporated teaching the child self-control, Copeland (1981) and Henker, Whalen and Hinshaw (1980) believed that the child's attributional style was an important factor to consider as students who not only saw themselves but believed (self-efficacy) that they could bring about a change in their performance experienced greater treatment success. An additional factor to consider was that children were not always aware of their own behavior (O'Leary, 1980). Recognition of one's behavior, allowed the student to become aware that a problem existed which would then facilitate the child in being able to identify the problem. Lastly, prior to teaching children self-instructions, Meichenbaum and Asarnow (1979) suggested that teachers acquire a metacognitive perspective to teaching. More specifically, teachers needed to be able to "predict task difficulty, to self-test or monitor the use of the strategy, adjust the strategy to task demands and make use of implicit and explicit feedback" (p.29) if they were to become effective trainers. The aforementioned factors of cognitive maturity, attribution style, self-efficacy, self-awareness and a metacognitive perspective to teaching become salient variables for the trainer to consider when providing self-instructional training.

Treatment Strategy

Recognizing that a strategy was critical to S.I.T., a question arose as to whether this strategy should be general or specific in nature. Carter, Patterson and Quaseborth (1979) found in their research regarding the use of a plan to achieve self-control, that grade 2 children could use a general plan more effectively than a detailed plan as compared to their younger kindergarten peers. Subsequently, they hypothesized that the amount of detail required in the plan was contingent upon the degree of difficulty the task presented for the child. O'Leary (1980) maintained, if the task to be learned was specific, the plan should be as well. However, if the target behavior was to be a generalized skill, then a general strategy which required the child to practice this strategy across various tasks and settings was advantageous (Schleser, et al., 1981). Therefore, the steps of the plan could be as general as those employed by Meichenbaum and Goodman (1971) but the specificity of the content used by the child would be contingent upon the nature of the task being taught to the student.

Lloyd (1980) proposed that the individual components of the plan be taught separately, not collectively. Another factor to be considered when developing a strategy for individuals emerged upon reviewing studies by Kendall and Wilcox (1980) and Kendall (1977). They suggested that a conceptual treatment strategy was superior to a concrete strategy. Moreover, these researchers believed that a conceptual plan would enhance treatment efficacy. In Meichenbaum's (1979) opinion the training procedures could best be conceptualized on a continuum whereby the content and format varied from concrete to abstract and from explicit to general didactic. Position on the continuum was determined by the child's cognitive abilities and the difficulty of the task being undertaken.

According to Meichenbaum and Asarnow (1979) the treatment programs would be enhanced once the child had explicit training in the comprehension of the task, learned to spontaneously produce mediators and used such mediators to guide behavior. O'Leary (1980) recommended that the trainer must also consider (1) if the target behavior was in the child's repertoire, (2) specificity of skill being trained, (3) the child's personal characteristics and (4) resources available for teaching cognitive skills when implementing and developing an effective strategy.

Establishing that the implementation of a plan would be advantageous in teaching children how to gain greater self-control, thus becoming more reflective, the question arises as to what should the content of this program include? Firstly, if the goal of the program was to teach children how to become more reflective, it was important that these children learn to develop a strategy which would help them to first slow down their responses by carefully identifying, defining and organizing the information required for the successful completion of the task at hand. Then the child would begin the task of carrying out his/her developed plan in a systematic manner while consistently engaging in self-monitoring, self-evaluating and self-reinforcing responses.

Meichenbaum (1980b) advised trainers that the content of the training program should incorporate executive planning functions. In his opinion, many impulsive children lacked or did not spontaneously employ these functions. The child needed to learn how to make conscious reflections about his/her cognitive abilities and activities that were concerned with self-regulatory mechanisms during an on-going attempt to learn or solve problems. Therefore, to teach a child how to devise a plan for solving a problem, would not be sufficient as the child must be able to analyse and characterize the problem, and reflect about what one knows or doesn't know that may be necessary for a solution. To achieve this goal, the child must receive metacognitive training from the trainer in order to help him/her "learn how to learn" (Meichenbaum, 1980b).

Self-Interrogation

The incorporation of executive planning functions necessitated that the child engage in self-interrogation skills. This was particularly true for impulsive children. Finch and Montgomery (1973) established in their research with reflective and impulsive school age children that impulsive children did not know what kinds of questions to ask when attempting to seek information. Subsequently, metacognitive training would give them the advantage of their reflective peers.

The utilization of self-interrogation was critical to achieving optimal treatment effects for other reasons as well. Within this self-interrogation process, the child could be encouraged to self-monitor his/her behavior. A number of studies within the literature attested to the advantages of incorporating a self-monitoring procedure within the treatment strategy which is of value for a S.I.T. program. Of particular interest was a study by Hallahan, Kosiewicz, Myron, Kauffman and Graves (1979). These researchers demonstrated that having a child self-monitor whether he/she was remaining on task increased on-task behavior and contributed to increased academic performance. Although some self-instructional programs incorporated self-interrogation procedures, formal strategies for self-monitoring behaviors had not been utilized. Hence, incorporating a self-monitoring procedure to determine if students were using a strategy within a classroom self-instructional training program should not only contribute to increasing the likelihood of the children utilizing the strategy taught but also enhance treatment efficacy.

Another advantage of the self-interrogation process was that the child could engage in self-assessment procedures which allowed him/her to assess the quality or quantity of his/her behavior. This examination not only led to improved performances but to maintenance of treatment effects (O'Leary and Dubey, 1979). Henker, Whalen, Henshaw (1980) maintained that the self-evaluation process also served to remind the child of his/her personal control over behaviors and outcomes.

Associated with the self-assessment procedures were the self-reinforcement statements which increased the child's level of motivation, thus facilitating the likelihood of desirable performances being obtained. A study by Nelson and Birkimer (1978) indicated that the incorporation of self-reinforcement statements within a S.I.T. improved students' performance.

In conclusion, the self-control procedures of self-monitoring, self-assessment and self-reinforcement all contributed to the significant goal of having the child develop greater self-control resulting in treatment efficacy being enhanced.

Additional Factors to Consider

Other suggestions have emerged from previous research as to how to enhance training effects. Parrish and Erickson (1981) believed that having subjects use materials from their school curriculum facilitated treatment generalization as these activities were familiar and relevant to their school performance. Generalization according to Schleser et al. (1981) would also be enhanced by having the child manipulate the content of the strategy. The utilization of visual cues, (Eastman and Rasbury, 1981) as well as the use of games, (Meichenbaum, 1980b) served to facilitate the acquisition of the strategy. In addition, Kendall and Zupan (1981) advised that self-instructional training programs exhibited greater treatment effects when training had been extended. Finally, Eastman and Rasbury (1981) advocated incorporating a mastery test to ensure that the children have learned the strategy.

Consolidating and incorporating all of these findings within a S.I.T. program should serve to produce greater treatment effects and generalization of treatment across cognitive tasks.

Treatment Efficacy and Generalization

The literature reviewed indicated that researchers generally agreed that S.I.T. has demonstrated some efficacy in reducing the impulsive conceptual tempo of children on those tasks in which they had been specifically trained

(McKinney and Haskins, 1980). However, there was evidence to suggest that some researchers questioned its efficacy as an intervention strategy. Hobbs and associates (1980) judiciously criticized a number of S.I.T. programs for demonstrating an increase in latency but not in performance as determined by the M.F.F. test (Genshaft & Hirt 1979; Meichenbaum & Goodman 1971). Failure to consistently demonstrate improved performances became a significant issue as the goals of S.I.T. were not only to slow down the impulsive students behavior but also to increase his/her performance.

Regardless of whether there were increases in reflectivity or not, a large number of studies failed to achieve generalization of treatment effects across tasks and settings. A study by Eastman and Rasbury (1981) employed S.I.T. procedures to teach six children individually how to become more reflective in the classroom. Although components of the treatment program were incorporated within the children's daily classroom activities, these researchers were unable to demonstrate that the treatment group experienced significant increases in reading performance and on-task behavior. Genshaft and Hirt (1979) obtained mixed results from their research which attempted to alter the cognitive tempo of seven year old children. Upon completing a 10 hour training program, the researchers established that these treatment subjects did not exhibit a change in performance on the M.F.F. test. However, there was a significant increase in their performance on the picture arrangement subtest of the Wechsler Intelligence Scale for Children Revised (WISC-R) (Wechsler, 1974).

Similarly, the problem of generalization of treatment effects had been present among the initial studies. Meichenbaum and Goodman (1971) were unable to demonstrate a reduction in errors by the treatment group on the M.F.F. test. Although significant improvements were obtained by the treatment group on pre and posttest measures of the Porteus Maze (Porteus, 1965), significant increases in performance were also demonstrated by the attention control group. These findings negate the treatment effects established by the S.I.T. group as the improved performances could be attributed to practice effects. Furthermore, there was no generalization of treatment effects reported through classroom observation. This inability to bring about a change in classroom behavior was indicated by Coat's (1979) research. This research implemented a cognitive self-instructional program with third grade impulsive-aggressive boys. The results of this study indicated that the S.I.T. group did not significantly reduce classroom disruptiveness as measured by on-task behavior and the Conner's Behavior Rating Scale (Connors, 1969).

Marginal gains in generalization of treatment effects were obtained in a study by Camp, Blom, Hebert and Van Doornick (1977). They trained aggressive six to eight year-old-boys who were impulsive to use self-instructions to solve intellectual and social problems. The treatment subjects were able to increase their latency period in situations of response uncertainty but failed to decrease the number of errors on (M.F.F.) test. Apart from establishing significant gains on the Coding subtest of the W.I.S.C.-R., non-significant findings were reported from other W.I.S.C.-R. subtests, the auditory reception subtest of Illinois Test of Psycholinguistic Abilities, (Kirk, McCarthy and Kirk, 1968) and the reading test from the Wide Range Achievement Test (Jastak and Jastak, 1978).

A recent study by Parrish and Erickson (1981) with third grade impulsive children demonstrated that children who recieved self-instructional training, improved performance on a number of tasks compared to an attention control group. These tasks included a classroom quiz test, and M.F.F. errors. Significant gains were reported on four of the five subtests of the quiz (i.e., language arts, map and graph reading, arithmetic and reading arts). Of particular importance was the improved performance in the nontrained subtests of language arts, and map and graph reading. The treatment effects of the S.I.T. group became minimized upon recognizing that a scanning strategy group also obtained significant improvements on these tasks when compared to a non-treatment group. Generalization to classroom behavior was not demonstrated for any of the groups according to two teacher rating scales.

Utilizing a self-instructional program, Kendall and Wilcox (1980) found that impulsive children who received a conceptual training program were rated by teachers to have exhibited an increase in self-control when compared to a concrete S.I.T. group and a control group. Other measures of treatment effects did not produce positive findings due to the treatment groups failing to improve their performances on (M.F.F.) test errors and Porteus Q score when compared to a control group.

Some studies have been more successful in obtaining generalization of treatment effects. In an earlier study, Kendall and Finch (1978) trained six impulsive children to use self-instructional training as a means of reducing their impulsive behavior tendencies in the classroom. These researchers established that treatment effects generalized to the children's classroom behavior as measured by a teacher rating scale. A research project by Bornstein and Quenvillan (1976) was able to increase the on-task behavior of overactive male students within their classroom. (Bornstein & Quenvillan, 1976). Similar improvements in on-task behavior were demonstrated by a program conducted by Bryant and Budd (1982) with three impulsive preschoolers. Their S.I.T. program resulted in the on-task behavior improving significantly for two of the three subjects. All three subjects improved their accuracy on daily worksheets. These researchers as well as others (Bornstein & Quenvillan, 1976; Kendall & Finch, 1978; Kendall & Wilcox, 1980) believed that the inclusion of extrinsic reinforcement principles facilitated treatment efficacy and generalization.

The significance of incorporating response cost procedures within a treatment program was not found to be critical to achieving generalization according to research completed by Arnold and Foreland (1978). In this study, impulsive children who received a response cost treatment program improved their performance only within the immediate setting, while those subjects within the cognitive training group changed their performance in another setting. It was significant to note that several studies (Genshaft and Hirt, 1979; Kendal and Zupan, 1981; Meichenbaum and Goodman, 1971) had reported that a (S.I.T.) group and a control group exposed to identical training materials had managed to obtain generalization of treatment.

In summation, the evidence was inconclusive as to the ability of self-instructional training programs to demonstrate significant improvements in impulsive children's performance and generalization of these treatment effects across tasks and setting. Therefore another purpose of this research project was to answer the question, can regular grade 2 students who receive a classroom self-instructional training program to increase their level of reflectivity improve their performance on a number of cognitive tasks.

Self-Verbalization

A survey of the literature on cognitive self-insructional training raised another signficant question. How important was the use of self-verbalizations within the treatment program? According to research by Meichenbaum and Goodman (1971) a group of children who had self-instructional training plus cognitive modeling became more reflective as measured by the M.F.F. test than a group which received only cognitive modeling. Bender's (1976) research suggested that the inclusion of self-verbalization training to be more effective than just modeling a cognitive strategy. Additional research evidence attesting to the significance of self-instructions to the treatment program was demonstrated through two doctoral dissertations by Nelson (1976) and Parrish (1979). According to test performances on the (M.F.F.) test, Nelson (1976) concluded after comparing several treatment groups (i.e., response cost, verbal self and verbal self play response) that the self-instructionally trained children exhibited the most significant decreases in impulsivity over time. Similarly, Parrish's (1979) doctoral dissertation indicated that there was greater maintenance of treatment effects for treatment groups using self-instructions as compared to strategy training and an attention control group.

Research had not always reported the use of self-instructions to be facilitative. A study by Robin, Ormel, O'Leary (1975) placed 30 kindergarten children in either a self-instruction, direct training or no treatment group. They found that both the self-instruction and direct training group improved their abilities to write. However, their research also indicated that there was no significant correlation between number of self-instructions made by the self-instructional group and their performance. Therefore these authors concluded that they seriously questioned using self-instructions because of their limited practicality. Additional uncertainty regarding the benefit of self-verbalizations emerged upon considering Eastman and Rasbury's (1981) findings. Teacher observations of children trained to use self-instructions, indicated a negative correlation between children's verbalizations and levels of on-task behavior and academic performance.

A study by Camp and associates (1977) with aggressive boys raised uncertainty as to the facilitative effects of self-instructions being able to maintain functional control over motor behavior. Camp (1977) found that delinquent boys were unable to slow down their finger tapping speed under covert self-verbalization. This problem was identified as being one of a control deficiency (Kendler, 1972). This research indicated that it was important to assess the type and quality of self-verbalizations being used in order that future self-instructional studies could benefit from understanding the influence that self-instructional had in controlling behavior.

A number of studies which had compared self-instructional training to other treatment groups or control groups had failed to demonstrate significant improvements in performance. Kendall and Zupan (1981) found that teacher ratings of improved self-control among children who received self-instructional training individually or in groups did not differ from an attention control group. An attention control group who were exposed to the same training materials as the self-instructional group (Coats, 1979) demonstrated equal ability to reduce classroom disruptiveness. Brown and Conrad (1982) found that an attention training group of hyperactive children obtained a significant decrease in errors on the M.F.F. test while the inhibitory control training group (similar to Camp and associates , 1977) did not. These findings would suggest that attention training may be sufficient to improve the cognitive performance of hyperactive children.

The significance of utilizing self-instructional training as a treatment strategy becomes questioned upon recognizing that the modeling of reflective behavior alone could reduce the impulsive behaviors of children (Nagle and Thwaite, 1979). In attempting to alter the cognitive style of fourth grade children, Ridberg, Parke and Hetherington (1971) found that a model who demonstrated a scanning strategy was as effective as a model who verbalized the scanning strategy. Moreover, the cumulative effects of both types of modeling did not produce an additive effect.

Not only was there research evidence questioning the significance of using self-instructions within an intervention strategy but there were problems with getting subjects to self-verbalize. According to O'Leary (1980) children were often reluctant to self-verbalize the strategies learned during training sessions within their classroom. In addition, Hall (1980) and Lloyd (1980) cautioned that the use of self-verbalizations could result in inferior performances when "automaticy" was necessary as opposed to being reflective. Therefore researchers must train children to recognize when to use self-instructions in order that they can enhance performance.

The aforementioned studies created a considerable amount of doubt as to the salience of self-instructions to the treatment paradigm. These findings explained why Hobbs and associates (1980), Kendall and Korgeski (1979), O'Leary and Dubey (1979) and Pressley (1979) advocated that future self-instructional training studies should not only determine that self-verbalizations are being used but that their influence and efficacy towards the subject's performance be determined. Only after researchers begin to gather this data will trainers be able to determine the importance of getting children to use self-instructions (Copeland, 1981).

Therefore, a secondary purpose of this research project was to determine if those grade 2 students who receive a classroom self-instructional training program will self-report using appropriate self-verbalizations. Another aim was to see if the performance of those students who self-report using self-verbalizations will be superior to the non-self-verbalizers on a measure of impulsivity.

III. CHAPTER 3

PROGRAM DEVELOPMENT AND STUDENT TEACHER EVALUATION

The purpose of this study was threefold. Firstly, to develop and evaluate a classroom self-instructional training (S.I.T.) program. Another goal was to assess the ability of this classroom S.I.T. program to increase the reflectivity of impulsive and reflective grade 2 students. Lastly, this research determined if a relationship existed between those subjects who self-verbalized and the degree of reflectivity demonstrated on a measure of impulsivity. Because the development and evaluation of a classroom S.I.T. program was a significant objective, chapter 3 will outline the Peter Parrot program and the procedures for evaluation by students and teachers.

A. "Peter Parrot" A Classroom S.I.T. Program

A number of factors had to be considered when developing the S.I.T. program for grade two students. This program took into consideration the child's level of cognitive development. In addition, students had to be exposed to a variety of learning experiences to ensure that the program being learned would generalize across tasks. These learning experiences needed to incorporate activities which would motivate the student to learn. Program objectives were identified and defined in order that there would be a comprehensive understanding of what was to be learned. Another factor worthy of consideration in this

(S.I.T.) program was that the student had to learn that not only can he/she influence the outcome of his/her behaviors but also believe that he/she would be successful (self-efficacy) in becoming more reflective. In addition, effective S.I.T. programs had to provide opportunities for the student to receive evaluative feedback as to his/her performance . Lastly, and of particular relevance to grade 2 teachers in Alberta, was the factor that training materials were based upon the Department of Education's approved curriculum for grade 2 students.

The S.I.T. training program that was implemented to teach grade 2 students how to become more reflective included the cognitive modeling procedures outlined by Meichenbaum and Goodman (1971). However, a number of significantly different training components were incorporated within the Peter Parrot program.

Firstly, training was conducted in a classroom setting. Prior to initiating the training program, the trainer demonstrated to the students how Peter Parrot's program would improve their performance. The incorporation of an animated character (Peter Parrot) served to not only motivate the children but also provided them with an appropriate model for teaching them how to use self-instructions to guide and control their behavior.

Another training component worthy of mention was that students were exposed to training activities (i.e., match to sample task, simon says, grocery store game) which demonstrated to them the value of Peter Parrot's strategy in enhancing their performance. This strategy consisted of the child self-verbalizing the following questions: 1) What am I supposed to do?; 2) What do I need to know to do the task?; 3) How can I complete the task?; 4) Is my plan working?; and 5) How did I do? The addition of the second question from the original training program used by Meichenbaum and Goodman (1971) encouraged students to reflect on what they knew or needed to know in order to complete the task. Each of the specific questions in the Peter Parrot strategy were taught separately. In an effort to ensure that the students had learned Peter Parrot's strategy, the trainer tested the students as to their recall of the five questions.

The cognitive modeling procedures used in the classroom Peter Parrot program provided students with opportunities to practice "Peter Parrot's" strategy across a number of tasks selected from their school curriculum. Before students began working independently on their training activities, they were randomly asked to verbalize overtly "Peter Parrot's" strategy in order to demonstrate to the trainer how they would utilize the strategy to complete the task. This was followed by the trainer providing assistance to the student, should help be required. Other students as well as the trainer had opportunities to model how they would use "Peter Parrot's" strategy. After several cognitive modeling demonstrations, the trainer provided feedback regarding the different plans implemented, the types of specific questions asked, how self-verbalizations guided behavior, the effects of task difficulty and the quality of the verbalizations used. This period of interaction served as the metacognitive training component. Students received verbal praise and encouragement for their performances. In addition to this feedback, the trainer not only encouraged students to utilize self-reinforcement procedures but implemented external reinforcers when students performed appropriately.

The classroom training program also involved having the treatment students record if they were using self-verbalizations to guide their behavior while working independently on their assignments. This was achieved by having a timer ring at an unscheduled time, whereupon the students recorded on a previously administered card 'Yes' or 'No' to the question, "Were you using self-verbalizations to help you with the task?" and secondly if 'Yes', what were you saying?". This self-monitoring procedure helped to engender the use of self-verbalizations.

Because the S.I.T. program was to be implemented within the regular classroom, comprehensive lesson plans were developed for each of the 10 training sessions. These lesson plans incorporated the guidelines recommended to teachers for effective lesson plan construction (Fraenkel, 1973). One must be cognizant that these lesson plans were written with the intention that the reader would have a theoretical understanding of the principles of self-instructional training. Subsequently, before teachers could effectively use these lesson plans to instruct students, they would have to receive inservice training as well as observe demonstrations of students receiving classroom instruction.

The following was the first lesson plan used in the Peter Parrot program. A detailed description of the lesson plans used in the Peter Parrot classroom S.I.T. program can be found in the appendix (see Appendix A).

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #1

Motivation Activities:

1. The use of a puppet (Peter Parrot) to serve as an animated character to introduce S.I.T. program.
2. Drawing a picture of parrot.

Teaching Objectives:

1. To introduce the concept of self-talk and how it serves to guide behavior.
2. To demonstrate to students how to use Peter Parrot's program to complete a task.
3. To have the students learn and practice "Peter Parrot's" program and its 5 rules.
4. To have children acknowledge the utility and advantages of using Peter Parrot's program.

Materials:

1. puppet of a parrot
2. overhead projector
3. transparencies for:
    a. Peter Parrot's rules (program)
    b. match to sample tasks,
        i) bus, ii) dog
4. paper for drawing picture of parrot

How to Attain Objectives:

1. Use puppet as animated character to stimulate self-talk (self-verbalization).

2. Utilize cognitive modeling by teacher to teach students:
    a. Peter Parrot's program
    b. how self-talk guides behavior
    c. advantages of using Peter Parrot's program
3. Have students practice Peter Parrot's program on a match to sample task and receive feedback.
4. Ask students questions about how, when, and the advantages of using Peter Parrot's program.
5. Have students write out Peter Parrot's 5 rules and rehearse them in order to be able to recall them.

Lesson Format

Part I

Introduction:

(A) Teacher:

"What is this?" (show students picture of a parrot). I brought along a friend with me today - Peter Parrot puppet. "What can parrots do that other birds can't do?" (i.e., sparrows, robins, etc.)

"Because parrots can talk, that makes them pretty smart."

"Can you talk?"

Student Response: "Yes."

(B) Teacher:

"That makes you pretty smart too."

"Do you know why being able to talk makes you smart?"

(C) Teacher:

"Peter Parrot says that because he can talk, he talks to himself in order to help him do better work. In fact, he believes that talking to yourself is so helpful to boys and girls that he has made a program for how to use self-talk to help you when you are doing schoolwork. Before I show you how using self-talk can help you do better work in school, we should first understand what Peter Parrot means by self-talk. Who can tell me what self-talk means?"

Student Responses:

1. It means talking to yourself.
2. It means thinking out loud in your mind.

(D) Teacher:

"Let's try saying something to ourselves so no one can hear us." Instruct students to say this statement to themselves - "Today is Monday."

Begin by having students initially saying this statement out loud. Gradually have them fade this statement from a whisper to becoming covert.

(E) Teacher:

"Do you remember the game that you played last week? (Match to sample task which has been previously completed). Can you remember how you sometimes made mistakes choosing which picture matched the picture at the top. Peter Parrot is going to show you how he uses talking to himself to do better work. When he uses self-talk, he doesn't make as many mistakes. Watch and listen!" The teacher then places puppet on his/her hand allowing the puppet of Peter Parrot to demonstrate to students how Peter Parrot does school work. Transparency of the match to sample task (bus) is placed on overhead projector to serve as training activity.

(F) Teacher:

The teacher engages in cognitive modeling in order to demonstrate to the students how Peter Parrot's program can help them to select the correct picture.

(G) Teacher:

Upon successful completion of the task, the teacher asks students how Peter Parrot's program helped with choosing the correct alternatives.

Student Responses:

1. It helped to tell you what to do.
2. It gave you a plan.
3. It got you to slow down and work carefully.
4. You were able to figure out what to do.
5. You thought of a couple of ways of figuring out the correct response.
6. It made you think.
7. It helped you not to make as many mistakes because you had to look at all of the parts in the picture.

Some questions that the teacher can ask at this time:

1. What did Peter Parrot do that you don't do sometimes?
2. How could Peter Parrot's program help you in school?
3. When could you use his program?

Part II

(H) Teacher:

"Would you like to do better work in school? Peter Parrot's program can help you do better. Let's learn the 5 rules that he says to himself when he has a job to do."

Place 5 rules on overhead projector and have the children rehearse them. Ask the children why each rule is important?

(I) Peer-Modeling and Feedback:

Teacher:

"Would some of you like to try using Peter Parrot's program?" The teacher asks children at random to use Peter Parrot's program to complete another match to sample task. (Place transparency of dog on overhead projector.)

Each child is given feedback as to their use of Peter Parrot's program to complete match to sample task.

(J) Seat Work:

1. Have students print Peter Parrot's 5 rules (program) in their workbook. The students can then be challenged by the teacher to see who will be able to remember them tomorrow.
2. The children are allowed to draw a picture of a parrot once Peter Parrot's rules have been entered into their workbook.

Evaluation: (Formal and Informal)

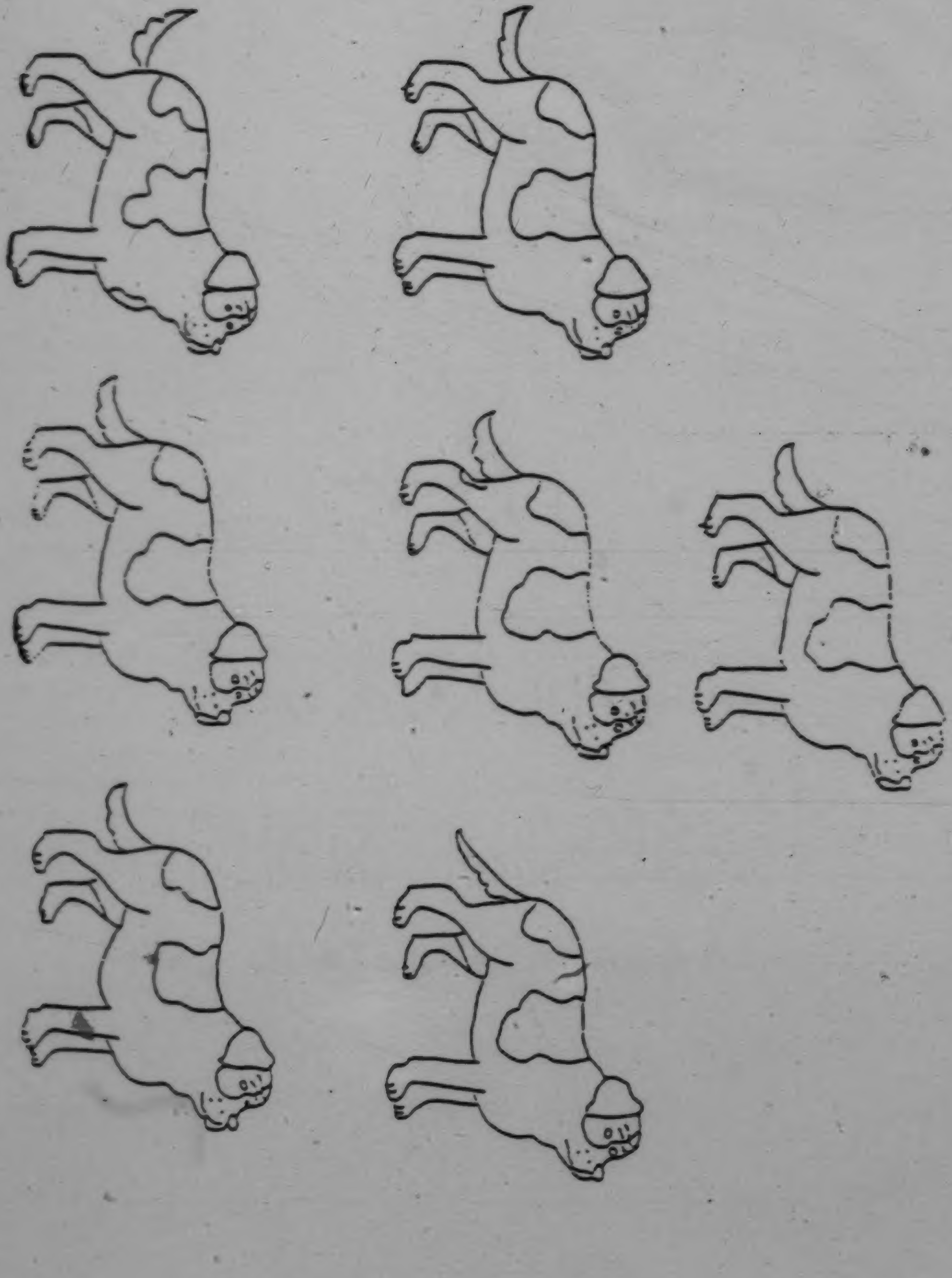
1. The ability of students to verbalize the advantages of using Peter Parrot's plan.
2. The student's desire to engage in use of Peter Parrot's plan.
3. The extent to which students are able to use Peter Parrot's plan to complete the match to sample tasks.

LESSON PLAN 1

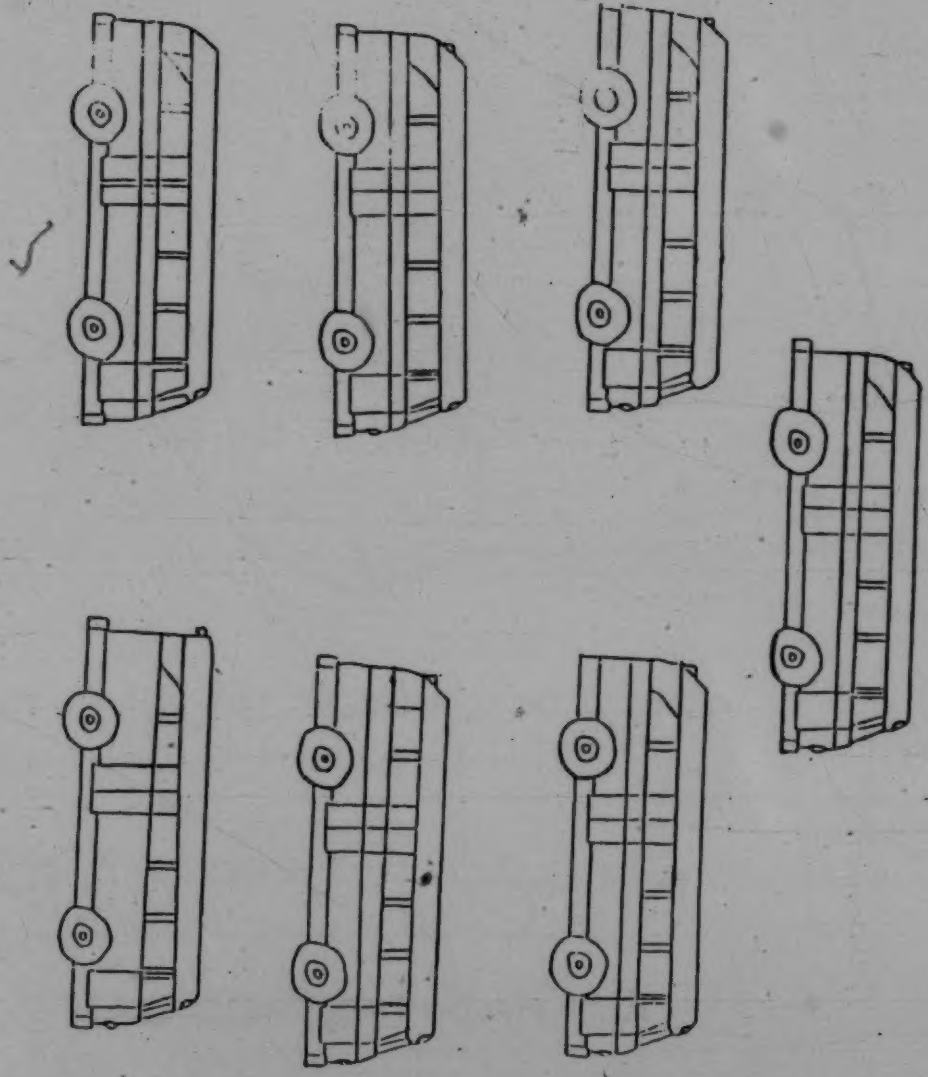
Peter Parrot's Rules

1. What am I supposed to do?
2. What do I need to know to do the work?
3. How can I do the work?
4. Is my plan working?
5. How did I do?

LESSON PLAN #1



LESSON PLAN #1



B. Student/Teacher Program Evaluation

In order to determine students' acceptance and attitude towards the S.I.T. program, they were asked to complete two evaluation forms upon completion of the program. Although both forms utilized a 5 point Likert scale to measure student responses to six statements, one scale took the traditional format of a series of written ratings (Standard Form) while the other imposed a series of happy faces (Happy Face) as a means of measuring student acceptance (see Appendix B). These parallel rating forms were completed by the subjects on two different occasions, one day and five days upon termination of the training program with alternate forms being used on each occasion. Similarily, teacher's were asked to evaluate the quality and appropriateness of the ten lesson plans used in the training program. This evaluation consisted of teachers employing a 5 point Likert scale to rate a 5 statement, questionnaire within a two week period after the program had concluded (see Appendix C).

Data from the student and teacher evaluation forms of the Peter Parrot" program was statistically analyzed on the basis of their responses to the entire questionnaire as well as on their responses to specific evaluation statements.

Recognizing that the statistical evaluation of the Peter Parrot program (10 lesson plans) by students and teachers did not warrant employing statistical null hypotheses, the following questions were asked to address this issue:

1. How positively will the students judge the Peter Parrot program?
2. How positively will the teachers judge the 10 lesson plans of the Peter Parrot Classroom S.I.T. Program?

IV. CHAPTER 4

METHODOLOGY

In addition to developing a classroom S.I.T. program and evaluating its appropriateness for classroom use by students and teachers this study also intended to assess the ability of a classroom S.I.T. program to increase the reflectivity of regular grade two students. Another aim of this research was to ascertain if a relationship existed between the use of self-verbalization and the degree of reflectivity demonstrated by grade 2 students. This chapter will outline the procedures implemented to measure the later two research objectives.

A. Dependent Measures

In order to test the efficacy of the classroom self-instructional training program, several dependent measures were selected. One of the most widely used measures of impulsivity is the Matching Familiar Figures Test. This test is a 12 item match-to-sample task that requires the child to choose from an array of six variants the picture which is identical to a standard. Norms have been developed by Salkind (1978) on a sample of 1500 normal children ranging in age from 5 to 10 years of age.

The Otis-Lennon Mental Ability Test Form, (Otis & Lennon, 1967) is reported to be a measure of general mental ability and scholastic aptitude. Subsequently this instrument measures the student's ability to reason and function abstractly with verbal, symbolic and figural test content (Otis & Lennon, 1967). Because the elementary I level is designed for those students in the last half of grade one through the end of grade three, it became the form selected.

The author's of this test reported the split-half and Kuder-Richardson reliability coefficients of Form J for grade two students to be .89 and .88 respectively. Similarily a high level of reliability (.85) was obtained for grade two students. In addition, the standard error of measurement for raw scores was 4.8 points for grade two students. The test authors also state that the norms were established upon a very representative and extensive sample from the United States as over 20,000 students from 117 school districts participated. Therefore, this assessment instrument served as an appropriate measure to determine the generalization of treatment effects upon mental ability.

The reading subtest from the Wide Range Achievement Test (Jastak & Jastak, 1978) required the child to accurately pronounce a series of words which gradually increased in difficulty. Based upon the number of words correctly pronounced, the child's performance is transposed into a grade score, standard score or a percentile score. The test has been well normed with sample sizes of 600 being used across the various age levels. The reliability coefficient for children aged 5-11 years was .98 with the standard error of measurement being 1.05 to 1.39. A number of validity studies have been conducted. The reading grade scores produce correlations ranging from .78 to .88 with teacher ratings of student grade placement (Wagner & McCloy, 1962). Compared to two other standardized reading tests (Woody-Sangsen Silent Reading and New Stanford Reading test), this test yielded coefficients of .78 to .80 respectively (Wagner & McCloy, 1962). In regards to level of intellectual functioning, the reading score correlated .85 with W.I.S.C.-R intellectual quotients for children aged nine to eleven years. This reading test provided a measure of treatment generalization to an academic task.

In order to obtain a measure of students' reading comprehension, the reading comprehension subtest of the Gates-MacGinitie Reading Test, Level B, Form 2 (Gates and MacGinitie, 1978) was administered. This test required students to first read brief passages which increase in complexity and secondly choose a picture that corresponds with the text. The test is normed upon 46,000 Canadian students from which 3,000 to 4,500 were selected from each grade level. To facilitate test validity, the authors had a group of Canadian educators examine the test items for their appropriateness for Canadian students. The Kuder-Richardson 20 reliability coefficient for the comprehension subtest was .92.

The game of "Perfection" offered an interesting measure of impulsivity as the child had to correctly place 25 geometric figures on a form board within a 60 second period or the board would 'pop up,' dislodging the previously placed geometric figures. In order to obtain a high score, the subject had to work in a systematic and controlled manner. Therefore, the greater the number of geometric figures correctly placed, the more reflective the students performance. The rules of the game were first explained to the child by the examiner, and then he/she was given 30 seconds to practice. This was followed by a three minute period in which the child had an opportunity to ask questions and/or develop a strategy as to how to complete the task. The incorporation of a game as a measure of impulsivity helped to determine if the training effects from the classroom S.I.T. program would generalize to a novel task.

B. Subjects

Four regular grade 2 classes from two schools in the Morinville community of Alberta served as the subjects for this study. A total of 81 students participated in the training program. The mean age in months of the participants was 94.8 with the youngest being 86 months of age while the oldest was 110 months of age. Of these subjects, 44 were females. Although all of these subjects were students placed in the regular classroom, 21 of these students were receiving learning assistance from a resource room teacher.

C. Procedure

One week prior to the implementation of the training program all subjects were tested individually on the Matching Familiar Figures test by four trained examiners who were unaware of the purpose of the study. The examiners received two 40 minute training sessions to ensure that this test as well as the other three dependent measures were properly administered and scored. Subjects within each school were randomly assigned to either a treatment group, a material control group and a control group.

The treatment group received ten, 40 minute training sessions from the researcher who also acted as the program trainer. While the treatment group was receiving the classroom self-instructional training program, the material control (MC) group spent ten sessions completing the identical training materials used by the treatment group from one of the grade two teachers. The purpose of the M.C. group was to control for effects of training materials. The remaining control group continued to receive classroom instruction from the remaining grade two teacher.

D. Post-testing

Within 7 to 14 days following termination of the training program, posttest data was collected individually on the M.F.F. test, the reading subtest on the W.R.A.T. and the game of perfection. The Otis-Lennon Mental Ability Test and the comprehension subtest of the Gates-MacGinitie

Reading Test were administered as group tests to students while in their classroom.

An additional component was incorporated within the posttesting procedure to ascertain the type and quality of self-verbalizations being used by all subjects to guide and control their behavior while completing the M.F.F. test. Two cognitive assessment procedures were implemented to achieve this objective. Firstly, a self-report assessment utilizing reconstructive procedures (Genest & Turk, 1981) was conducted. Subsequently, each student's performance on the M.F.F. test was videotaped and upon termination of the test, the child observed a videotape of himself/herself doing the test. The observation by students of their performance served to facilitate their recall of any self-verbalizations made during the completion of the task. Prior to students viewing this videotape, procedures recommended by Bornstein, Hamilton, Carmody and Rychlank (1977) were employed to enhance reliable self-reporting.

The following instructions were then given by the examiner to the students before they observed a two-minute videotape of their performance. "I want you to pretend that your mind is like a tape-recorder, so that you can tell me out loud so I can hear you, what you were thinking, what was going through you mind while you were playing the game." The video recorder was then turned on and the examiner stated, "Child's name, watch yourself on the television, (pause) try to remember what was going through your mind. What were you thinking while you were doing that question there? (The examiner points to television.) Tell me out loud so I can hear you." If the child did not respond within a one minute period, the examiner said to the student "Watch yourself on the T.V., tell me what is going through your mind. What were you thinking right there (point) as you were doing the question." (see Appendix D)

Depending upon the amount and quality of self-verbalization reported by the student, the examiner scored the subjects level of self-verbalization on a graduated rating scale from one to five. The following criterion was used for rating student self-verbalization: a rating of 1 represented a non-self-verbalizer, a rating of 2 indicated an inappropriate self-verbalizer, a rating of 3 was a mixed self-verbalizer, a rating of 4 was indicative of a self-verbalizer while a rating of 5 demonstrated a high self-verbalizer (see Appendix D). Examiner's were unaware of which students had participated in the Peter Parrot training program.

During the piloting of the reconstructive procedures, subjects appeared to be having difficulty self-reporting their use of self-verbalization, so an additional assessment procedure was incorporated which served as part II of the cognitive assessment. Upon completion of the reconstructive cognitive assessment procedures, subjects were given the M.F.F. test booklet. As they looked at the first and second trials of the M.F.F. test, they were asked to self-report what was going through their mind, what were they thinking while doing these questions. This procedure was also conducted on the question which they had the most number of errors. The examiners then scored the students self-reports on the identical graduated five point rating scale used in part I of the cognitive assessment.

Both cognitive assessment procedures incorporated a check system for measuring the reliability and validity of student self-reports. Because examiners recorded the erroneous selections made by the subjects for each M.F.F. test item, they were able to determine if the child's self-report differed from what he/she actually did during M.F.F. testing. When this discrepancy occurred the subjects self-report was coded with an R as a means of determining the number of self-reports which differed from student test performance.

To enhance the accuracy of the rating of student self-verbalizations, the two examiners piloted the cognitive assessment procedures with 26 grade 2 students. In addition, student self-reports of self-verbalization were tape recorded and anecdotal reports were taken during both cognitive assessment procedures.

In order to determine the efficacy of the classroom S.I.T. program, a two-way analysis of variance (ANOVA) was calculated for each of the five dependent measures. A level of significance of P<.05 was deemed necessary to refute the statistical null hypotheses. A two-tailed test of significance was employed.

Because another aim of this study was to determine if the reflective subjects could exhibit an increase in reflectivity, each of the experimental groups was divided into either a reflective or impulsive subgroup. Those subjects who were above the median impulsivity index on the M.F.F. pretest, formed the impulsive group while the remaining subjects represented the reflective sample. A three way ANOVA, utilizing a two-tailed test of significance at the .05 level of significance was the statistical analysis conducted. In addition, a one-way ANOVA employing a two-tailed test of significance ($P<.05$ level) served as the statistical procedure used to determine if a relationship existed between self-verbalization and performance on the M.F.F. test.

The following statistical null hypotheses were tested:

1. A classroom (S.I.T.) program will not improve the grade 2 students reflectivity as measured by the M.F.F. test.
2. Students who receive the classroom S.I.T. program will not demonstrate a superior performance on the reading subtest of the Wide Range Achievement test compared to the material control and control group.
3. Students who receive the classroom S.I.T. program will not demonstrate a superior performance on the comprehension subtest of the Gates-MacGinite Reading Test compared to the material control and control group.
4. Students who receive the classroom S.I.T. program will

not demonstrate a superior performance on the Otis-Lennon Mental Ability Test compared to the material control and control group.

5. Students who receive the classroom S.I.T. program will not demonstrate a superior performance on the game of "Perception" compared to the material control and control group.
6. A classroom S.I.T. program will not improve the performance of reflective grade 2 students as determined by the M.F.F. test.
7. The percentage of students in the classroom S.I.T. program who self-report using self-verbalizations to guide their behavior will not be greater than the percentage of students in the control groups.
8. Those subjects who self-report using appropriate self-verbalizations to guide their behaviors will not demonstrate superior performances on the M.F.F. test.

The results of the statistical analyses and the discussion of these findings are found in Chapter 5.

V. CHAPTER 5

RESULTS AND DISCUSSION

Upon completion of the study, a number of statistical analyses were computed in order that the proposed questions and hypotheses could be addressed. This chapter discusses the findings obtained and the resultant explanations given for them.

A. Question #1

How positively will the students judge the Peter Parrot program?

In order to determine student acceptance of this classroom S.I.T. program, 27 of the 28 students who received the treatment program completed the Standard and Happy Face evaluation forms. Recognizing that a total score of 30 on each of the evaluation forms indicated complete strong agreement for each of the six statements, mean rating scores by students of 26.53 and 26.07 on the Happy Face and Standard evaluation forms attest to their positive acceptance of the program.

A more detailed analysis of the student's acceptance of the program was illustrated by compiling percentage scores of student ratings for each evaluation statement (see Table 1). A review of this data indicated that there was only a minor amount of disagreement by students on two of the six statements. More specifically, for the statement: I like using Peter Parrot's program, 3.5 percent or (one student)

Table 1

Percentage Scores for Student Ratings on Student Evaluation Forms

Statement	Student Ratings					
	1	2	3	4	5	
1) I found the program to be helpful.			7.22	21.44	71.5	Standard Form
			7.22	7.44	85.2	Happy Face
2) I know how to use the program.			7.2		92.8	Standard Form
			7.4	25.9	66.6	Happy Face
3) I like using Peter Parrot's program.		3.5	14.2	7.1	75	Standard Form
			7.4	48.1	44.4	Happy Face
4) I am using the program should be taught.			21.4	17.8	60.7	Standard Form
			7.4	37.0	55.5	Happy Face
5) I think the program should be taught.			21.4	10.7	67.8	Standard Form
			11.1	37.0	51.8	Happy Face
6) I like to use the program at home.	7.1		50.0	7.1	35.7	Standard Form
	7.4	3.7	48.1	14.8	25.9	Happy Face

Value of Student Ratings

1 ——> strongly disagree
2 ——> disagree
3 ——> unsure
4 ——> agree
5 ——> strongly agree

was unable to agree with the statement. However, on the parallel evaluation form, this student was unsure of his/her agreement with the statement. The statement, I like to use the program at home, resulted in 7.1 percent (2 students) and 11.1 percent (3 students), being unable to agree on the Standard and the Happy Face evaluation forms.

The relationship between student ratings on the two evaluation forms was very high as a significant ($p<.00$) Pearson correlation coefficient of .77 was obtained. This indicated that the students relative position to the group in terms of their positive attitude to the Peter Parrot program was similar across the 2 evaluation forms. In addition, the lowest level of agreement between evaluation forms was 55 percent on question 3 while the highest level of agreement was 85 percent for question number one.

One would conclude on the basis of this data, that the student ratings were highly stable and positive towards the Peter Parrot program.

A review of these findings warrant discussion. Generally speaking, the students agreed that they: understood how to use the program, liked to use it, found it helpful, used it in school and at home, and believed that it should be taught in their school. There were only four negative responses recorded by three of the 27 students who evaluated the Peter Parrot program. The inability of three students to agree with the statement "I like to use Peter Parrot's program at home." might be a result of two factors.

The first being that children of this age group find it difficult to generalize the treatment program across settings (school to home). Another explanation might be that a greater emphasis for the training program to have students use Peter Parrot's program in the home, might have more students agreeing with the statement.

Nonetheless, this minority group should not shadow the positive ratings which indicated that 40 percent of the subjects were able to agree with this statement. Although this statistic is not as significant as one would like, it does suggest that the students were using the Peter Parrot program in their homes. Because the Peter Parrot S.I.T. program encorporated strategies to facilitate generalization occuring (i.e. practiced across a variety of tasks, encorporated a general strategy, utilized tasks conducted in the home, one would question if greater efforts were made to train generalization, would the degree of generalization have been enhanced.

Because of the minimal number of unfavorable ratings forthcoming from students one would have to conclude that the students had a very positive attitude toward the Peter Parrot program. This finding is significant for educators wishing to utilize self-instructional training programs as a favourable evaluation by students contributes to greater student acceptance and motivation to learn.

The development of parallel student evaluation forms (Happy Face and Standard) enhanced the outcome of this study as they served a twofold purpose. The primary objective of these parallel forms was to measure student agreement between forms over time. The mean level of agreememt for students' ratings on the evaluation form was 70 percent with the highest level of agreement being 85 percent on question one and the lowest being 55 percent on question three. Upon considering the high level of agreement between evaluation forms and the highly significant (p<.00) Pearson Correlation of .77, one would conclude that students ratings were very stable.

A secondary objective for implementing parallel evaluation forms was to determine if grade 2 student ratings would be influenced by utilizing the symbolic happy face figures as opposed to the standard written stems used in traditional likert rating scales. In this regard, neither form appeared to have any significant advantage over the other, as demonstrated not only by the similar student mean rating scores obtained 26.5 (Happy Face) and 26 (Standard) but by the standard deviation scores of 3.21 and 2.77 respectively. The Pearson Correlation of .77 (p<.00) also reflected that student ratings relative to the group were similar regardless of which form was administered. In addition, no significant advantage was deemed to be apparent as a result of examining how well the rating scales correlated with the dependent measures used to ascertain changes in student performance. Furthermore, when asked, teachers who administered the evaluation forms to the students did not report one form being advantageous over the other with this age group. Contrary to what this researcher believed might transpire, the use of a children's symbolic figure, (i.e. Happy Face) did not overtly appear to have a differential effect upon the ratings of grade 2 students. What did appear to be a salient factor to consider when implementing traditional Likert rating scales according to teachers, was to ensure that the instructions be age appropriate and clear.

B. Question #2

How positively will the teachers judge the 10 lesson plans used in the Peter Parrot Classroom S.I.T. program?

The four teachers who had students participating in the study completed a five statement, evaluation form which required them to rate the quality of the ten lesson plans on a 5 point Likert scale. The following percentage scores were calculated for teacher ratings of each statement on the evaluation form (see Table 2).

Acknowledging that a total score of 25 would be indicative of complete, strong agreement with the five statements from the evaluation form, a mean score of 23.25 by teachers indicated their positive response to the ten lesson plans which comprise the Peter Parrot program.

An analysis of teacher ratings for each evaluation statement demonstrated that they either agreed or were in strong agreement with the statements. In addition, 50

Table 2

Percentage Scores for Teacher Ratings on Teacher Evaluation Form.

Statement	Teacher Rating				
	1	2	3	4	5
1) The lesson plans were easy to follow.				25	75
2) I believe that I could teach these lessons.				50	50
3) The overall quality of the lesson plans.	poor	below average	average	above average	excellent
				50	50
	1	2	3	4	5
4) I found the lessons appropriate for classroom use.				25	75
5) I would recommend these lessons to another teacher.				25	75

Value of Teacher Ratings

1 ——> strongly disagree
2 ——> disagree
3 ——> unsure
4 ——> agree
5 ——> strongly agree

percent (2 teachers) rated the quality of the 10 lesson plans to be above average while the other 50 percent (2 teachers) judged them to be excellent. One would conclude from the teacher ratings that they would strongly agree that the lesson plans of the Peter Parrot program were of high quality and appropriate for use in their grade 2 classrooms.

Asking teachers to also evaluate the Peter Parrot program provided the necessary complimentary balance to the development of an effective classroom program. A review of the program evaluation by teachers indicated that they 1) found the lesson plans to be easy to follow and appropriate for classroom use, 2) believed that they could teach the lessons and lastly 3) would recommend the lesson plans to another teacher. The most significant indication of teacher satisfaction was their expressed desire to want to implement the program with their students. Despite their favourable responses, two suggestions were forwarded by the teachers. These included ensuring that the puppet of Peter Parrot, be used throughout the entire training program and that teacher's receive inservice training on how to use self-instructional training in the classroom.

In summation, although the need for comprehensive individual S.I.T. programs has been recognized by educators, the development of a classroom program which has been positively evaluated by students and teachers is of significant value to the education system due to the larger number of students who can benefit from instruction.

C. Null Hypothesis #1

A classroom S.I.T. program will not improve the grade 2 students reflectivity as measured by the M.F.F. test.

A two-way analysis of variance (groups by periods) using repeated measures for the impulsivity index scores on the M.F.F. test resulted in there not being significant group differences (F 1.06 df. 2,78 P<.34) but a significant periods effect (F 46.08 df 2,78 P<.001) for pre and posttesting on the M.F.F. test. However a significant interaction affect (F 6.401 df 2,78 P<.003) for groups by periods was calculated (see Table 3). Because of this significant interaction effect a Scheffe test to determine significant differences among group means indicated that the change in the mean impulsivity index was significantly greater for the treatment group than for the material control and control groups respectively (F=13.95 df 2,78 p<;01 and F 6.88 df 2,78 p<.01). No significant mean differences were obtained for the two control groups. Means and standard deviations calculated from analyses of variance for the experimental groups on this dependent measure can be found in Table 4.

In summary, the increase in reflectivity by the treatment group was significantly greater than in the two control groups.

Additional analyses were computed for the impulsivity variables of latency and errors on the M.F.F. test. Two-way ANOVA's using repeated measures were calculated for these

Table 3

Two-way ANOVA of Pre and Posttest Performance on M.F.F. Test

	df	Mean Squares	F-Ratio	Probability
Impulsivity Index				
A (Groups)	2,78	5.791	1.066	.349
B (Pre & Posttesting)	1,78	44.291	46.082	.001
AxB	2,78	.961	6.401	.003
Latency				
A (Groups)	2,78	90.839	.700	.500
B (Pre & Posttesting)	1,78	37.704	11.315	.001
AxB	2,78	19.901	1.895	.157
Errors				
A (Groups)	2,78	45.812	1.287	.282
B (Pre & Posttesting)	1,78	72.503	61.211	.001
AxB	2,78	9.205	7.877	.001

Table 4

Means and Standard Deviations for Analysis of Variance on M.F.F. test.

Experiemental Groups		Pretest Mean	SD	Posttest Mean	SD
Treatment Group					
Material Control	(Latency Scores)	9.94	6.96	14.07	8.49
Control		9.51	5.57	10.32	6.55
		10.44	6.63	12.5	9.78
Treatment Group					
Material Control	(Error Scores)	13.21	5.5	6.82	4.27
Control		13.0	5.3	10.85	5 5.26
		13.03	5.8	10.38	5.02
Treatment Group	(Impulsivity	.025	1.9	-1.78	1.77
Material Control	Index Scores)	.053	1.6	-0.46	1.72
Control		-.082	1.76	-0.89	2.20
Treatment Group	(Impulsivity	-1.46	1.39	-2.77	1.62
Material Control	Index	-1.13	1.33	-1.19	1.75
Control	Reflective Subgroup)	1.43	.99	-2.27	2.06
Treatment Group	(Impulsivity	1.31	1.21	-.918	1.44
Material Group	Index Impulsive	1.15	.90	.216	1.42
Control	Subgroup)	1.49	.96	.704	.88
Treatment Group	(Error Scores	9.46	2.57	4.46	2.47
Material Group	for Reflective	8.84	3.23	8.92	4.62
Control	Subgroup)	8.92	3.02	7.0	3.72
Treatment Group	(Error Scores	16.46	5.37	8.86	4.51
Material Group	for Impulsive	16.85	3.88	12.64	5.34
Control	Subgroup)	17.83	4.62	14.33	3.05

two variables of impulsivity. With regards to latency scores, only a significant periods effect was demonstrated (see Table 3). These findings suggested that all groups increased their time to respond to alternatives during posttesting conditions but that there were no treatment effects.

The statistical analysis of the variable errors on the M.F.F. test resulted in a significant periods effect and a significant groups by periods interaction (see Table 3). A Scheffe test to determine significant differences among mean error scores indicated that the change in the mean error scores of the treatment group was significantly greater than the change in the mean error scores of the two control groups (F=13.46 df 2,78 p<.01 and F=10.243 df 2,78 p<.01). One would conclude from these findings that although all groups reduced their error scores on posttesting, the change in mean error scores for the treatment group was significantly greater. On the bases of these statistical findings, one would have to reject the null hypothesis as the treatment group demonstrated a signifcantly greater level of reflectivity as determined by the impulsivity index. Moreover, this increased level of reflectivity resulted in the treatment group having significantly fewer errors while not requiring a significantly greater amount of time to respond.

This study established that a classroom S.I.T. program could improve the reflectivity of regular Grade 2 students.

According to Hobbs et al (1981) previous studies which trained students individually have not always been as successful. Some studies, (Camp et al, 1977, Genshaft & Hirt, 1979 and Kendall & Wilcox, 1980) have significantly increased the latency scores on the M.F.F. test but have been unsuccessful in reducing the subjects error scores on the M.F.F. test. The error score is the most crucial impulsivity variable to alter, as the educators goal is to improve student performance. Combining the impulsivity variables of latency and errors also resulted in a significant increase in reflectivity as demonstrated by the treatment subjects reflective scores on the impulsivity index.

Failure of the treatment subjects to demonstrate a significant difference between groups for the variable of latency (response time) is a positive outcome as previous programs have been criticized for increasing the response time of subjects. In this study, the treatment program demonstrated that subjects performances could be increased (fewer errors) without subjects taking significantly greater periods of time to respond accurately which thus resulted in treatment subjects developing the preferred fast accurate response style.

Because little research has been conducted which investigates the efficacy of a classroom training program as opposed to the traditional individual or small group training programs, the positive outcomes of this study lead one to believe that there are merits to a large group training program. The first being that students are exposed to a variety of models who provide them with a number of effective demonstrations with how to work in a reflective manner. In addition, the modeled self-instructions demonstrated by students vary in their degree of complexity, thus allowing students the freedom to implement the type of self-instructions most appropriate for their present level of cognitive ability. Students are also likely to feel encouraged to use self-instructions in their classroom as a result of observing their peers using them regularly and recognizing that covert self-instructions ensure their privacy. Other researchers (Henker, Whalen & Hinshaw, 1980) maintained that students benefit from the influence of peer monitoring and prompting. Lastly, Pressley (1979) believed that having a child serve as a self-control model, for another child, enhanced the models self-control. The aforementioned variables would suggest that there are advantages to using a classroom S.I.T. program which possibly contribute to greater treatment efficacy.

D. Designation of Cognitive Style

Because this study was interested in not only investigating the treatment affects of a classroom S.I.T. program with regular grade 2 students but its effects upon the reflective grade 2 students as well, subjects within each experimental group were divided into either a reflective or impulsive subgroup based upon their pretest impulsivity index scores on the M.F.F. test. Subsequently, those subjects who fell below the median score of .107 on the impulsivity index for being reflective formed the reflective subgroup while the other students were classified as being impulsive. A description of the number of subjects representive of the two cognitive styles within each of the experimental groups can be found in table 5.

E. Null Hypothesis #2

Students who receive the classroom S.I.T. program will not demonstrate a superior performance on the reading subtest of the Wide Range Achievement Test (WRAT).

A two-way ANOVA was computed from subjects raw scores on the W.R.A.T.. The analysis established that there was no groups effect, (F .434 df 2,75 p<.649) but a significant effect (F .042 df p<.006) for cognitive style (reflective vs impulsive). A significant interaction effect for groups by cognitive style was determined (F 3.088 df 2,75 p<.05) (see Table 6). Means and standard deviations obtained from analyses of variance obtained on this dependent measure as well as for the other dependent meausres (Gates MacGinite reading subtest, Otis-Lennon Test of Mental Ability and the game of perfection) can be reviewed in table 7. Scheffe tests indicated that the mean raw score of the reflective treatment subjects to be significantly greater (F 5.26 df 2,75 p<.01 and F 2.72 df 2,75 p<.1) than the mean scores of

Table 5

Number of Reflective and Impuslive Subjects within Experimental Groups According to M.F.F. pretest scores

Experimental Groups	Reflective Subjects	Impulsive Subjects
Treatment	13	15
Material Control	13	14
Control	14	12

Table 6

Two-way ANOVA for Raw Scores on Reading Subtest (W.R.A.T.) and Comprehension Subtest (Gates MacGinitie Reading Test)

	df	Mean Squares	F-Ratio	Probability
W.R.A.T.				
A (Groups)	2,75	27.441	.434	.649
B (Cognitive Style)	1,75	508.412	.042	.006
AxB	2,75	63.218	3.088	.051
Gates MacGinitie (Comprehension Subtest)				
A (Groups)	2,73	56.125	1.191	.310
B (Cognitive Style)	1,73	129.480	2.748	.102
AxB	2,73	47.114	2.620	.08

Note: Means and standard deviations obtained from analysis of variance for these two dependent measures can be found in table 7.

Table 7

Means and Standard Deviations of Analyses of Variance Calculated for Dependent Measures

Dependent Measure	Experimental Groups	Posttesting Reflective Subgroup Mean	Posttesting Reflective Subgroup SD	Posttesting Impulsive Subgroup Mean	Posttesting Impulsive Subgroup SD
Reading Subtest (W.R.A.T.)	Treatment	62.77	8.10	51.93	4.85
	Material Control	55.62	7.61	55.43	9.33
	Control	57.71	9.61	53.67	7.37
Reading Comprehension Subtest (Gates-MacGinitie)	Treatment	33.39	3.95	26.0	7.33
	Material Control	27.31	5.57	28.39	7.64
	Control	27.5	7.63	26.09	8.18
Otis-Lennon Test of Mental Ability	Treatment	56.08	6.66	46.8	5.57
	Material Control	47.08	9.18	47.79	7.33
	Control	50.79	8.95	49.33	10.13
Game of Perfection	Treatment	14.85	3.37	14.04	4.23
	Material Control	13.97	3.19	14.77	3.27
	Control	15.17	3.69	14.15	3.61

the reflective subjects in the two control groups while no significant difference could be established between control groups. Although a $(p<.10)$ is not a high level of significance to utilize statistically, Ferguson (1976) maintained that this was an adequate level of significance to accept due to the fact that the Scheffe test for multiple comparisons is very rigorous.

These findings suggested that only the reflective students who received the classroom S.I.T. program achieved significantly greater scores on the reading subtest of the W.R.A.T.. However, generalization of treatment effects was not demonstrated by the impulsive students who received the classroom S.I.T. program.

Recognizing that a change in reflectivity has not always led to measureable gains on academic tasks (Camp et al 1977, and Robins et al 1975) the outcomes of this classroom S.I.T. program are of value to educators. Although there was not a significant difference in performance on the W.R.A.T. between experimental groups, a significant interaction effect was obtained. This interaction effect indicated that the reflective subjects who received a two week classroom S.I.T. program, obtained a mean reading grade score of 5.1, which was 1.1 grade levels superior to their reflective counterparts in the study. This study also demonstrated the effect that cognitive style has upon word recognition as the reflective students mean reading grade score of 4.4 was significantly greater than the 3.6 mean grade score of the impulsive students.

Although the reflective treatment subjects were able to demonstrate generalization of treatment effects on the reading subtest of the W.R.A.T., the inability of the once impulsive treatment subjects to do so, warrants discussion. There are two plausable explanations for these findings. Firstly, because of the brevity of the treatment program, these once impulsive students may not have had the necessary time to consolidate and practice this newly acquired reflective cognitive style across a sufficient number of cognitive tasks to produce generalization. Possibly, had the program been extended; the impulsive students according to the M.F.F. test, would have been able to transfer these reflective skills to an academic task. Another explanation might be that a high degree of reflectivity is required before generalization will occur on a word recogntion task.

In summary, the significant effects that the Peter Parrot program had upon the reading level (word recognition ability) of the reflective students offers considerable promise to educators who strive to enhance the reading level of students. Of additional value is the fact that this was a classroom S.I.T. program not one of individual instruction.

F. Null Hypothesis #3

Students who receive the clasroom S.I.T. program will not demonstrate a superior performance on the comprehension subtest of the Gates MacGinitie Reading Test.

A two-way ANOVA was computed from the raw scores obtained on the Gates MacGinitie to establish if treatment effects generalized to reading comprehension. This statistical analysis produced no significant effects for groups, cognitive style or groups by cognitive style (see Table 6). This statistical analysis indicated that treatment effects did not generalize to the subjects reading comprehension ability. Therefore the null hypothesis was not rejected.

On the basis of these findings one would conclude that the Peter Parrot program did not significantly influence the reading comprehension of students and that the influence of cognitive style upon reading comprehension was also not significant.

The results of the analysis to determine if treatment effects would generalize to a measure of reading comprehension was not significant. The absence of any significant differences emerging between cognitive styles and treatment groups offers some valuable information. Because reading comprehension is a more difficult cognitive task than the task of word recognition on the W.R.A.T., the increase in reflectivity of those reflective subjects in the treatment group might not have been sufficient to warrant an improved ability to comprehend reading materials. In addition, the effect of the type of cognitive style taught in the S.I.T. program upon reading comprehension might only be minimal. Lastly, it would appear that if a student's level of reading comprehension is to be altered, a comprehensive training program directed towards teaching reading comprehension skills is required.

Although there was not a significant interaction effect ($p<.08$) between cognitive style and groups on the Gates MacGinitie, a similar pattern of performance emerged as was demonstrated by the reflective treatment subjects on the W.R.A.T.. That is, the reflective students in the treatment group tended to exhibit the greatest increase in performance compared to their reflective counterparts.

G. Null Hypothesis #4

Students who receive the classroom S.I.T. program will not demonstrate a superior performance on the Otis-Lennon Mental Ability Test.

According to a two way ANOVA, no significant findings were obtained for groups, cognitive style or groups by cognitive style (see Table 8). Although significant results were not demonstrated, the analysis approached significance (.06 level) for both cognitive style and groups by cognitive style effects. Greater significance can be attached to these findings as the results closely parallel those obtained on the W.R.A.T. However, these findings suggested that the treatment effects did not generalize to the subjects performance on a measure of mental ability.

Although significant findings were not obtained for experimental groups, cognitive style and groups by cognitive style, these findings are of value. Once again a similar pattern of results emerged as was demonstrated in previous performance tasks (i.e. W.R.A.T. and Gates MacGinitie.) That is, a level of significance of .06 was obtained for groups by cognitive style. This interaction effect indicated that the reflective subjects in the treatment group obtained superior mean test scores of 5.3 and 9 when compared to the reflective students in the control and material control groups respectively. Scheffe tests indicated that the mean test score of the reflective students in the treatment group to be significantly greater than the mean test scores of the reflective students in the material control and control groups respectively (F 8.14 df 2,75 p<.01 F 2.92 df 2,75 p<.1). However, there was no significant difference between mean test scores of the reflective students in the material control and control groups. It is of interest to note that the following intellectual quotients (120 treatment group), (109 material control group) and (113 control group) were derived from posttest mean test scores for each experimental group. Possibly if the training program had been of greater duration the effects of the S.I.T. program to alter the mental ability of reflective students might have been more conclusive. Nonetheless, these findings offer educators encouragement as to the potential effects of the Peter Parrot program to increase performance on mental ability tests.

H. Null Hypothesis #5

Students who receive the classroom S.I.T. program will not demonstrate a superior performance on the game of Perfection.

A two-way ANOVA indicated that there were no significant effects for groups, cognitive style or groups by cognitive style (see Table 9). The null hypothesis would be accepted on the basis of these results, causing one to conclude that the treatment program did not influence student performance on this novel task.

The children's game of Perfection offered a novel task to ascertain if the Peter Parrot program would bring about a significant change in student performance. No significant results were obtained for the variables of groups and cognitive style. One explanation for these findings might be that because it was a timed test, those subjects who worked accurately but slowly would have been penalized. Another explanation might be that imposing time restraints resulted in the child experiencing anxiety causing performance to be impeded. Lastly, one would conclude that this novel task served as a questionable instrument for measuring cognitive style causing one to acknowledge the need for more effective measures to be constructed.

Table 8

Two-way ANOVA for Raw Scores on Otis-Lennon Mental Ability Test

	df	Mean Squares	F-Ratio	Probability
A (Groups)	2,75	111.310	1.723	.186
B (Cognitive Style)	1,75	224.772	3.479	.066
AxB	2,75	185.368	2.869	.063

Note: Means and standard deviations obtained from analysis of variance for the Otis-Lennon can be found in table 7.

Table 9

Two-way ANOVA for Mean Score on Game of Perfection

	df	Mean Squares	F-Ratio	Probability
A (Groups)	2,75	.613	.047	.959
B (Cognitive Style)	1,75	2.345	.182	.671
AxB	2,75	2.914	.516	.599

Note: Means and standard deviations of the analysis of variance for the game of perfection can be viewed in table 7.

I. Null Hypothesis #6

A classroom S.I.T. program will not improve the performance of reflective grade 2 students as determined by the M.F.F. test.

A three way ANOVA (see Table 10) resulted in a significant effects for cognitive style (impulsive/reflective), non significant effects for experimental groups and a non significant cognitive style by groups effect. However, significant effects for periods (pre-posttesting) was obtained. In addition this statistical analysis produced a significant interaction effect for cognitive style by periods and groups by periods. There was no significant interaction effect between cognitive style by groups by periods.

To determine if there were significant differences in mean scores on the impulsivity index among reflective groups, several Scheffe tests were calculated (see Table 10). These analyses established that the mean impulsivity index change score over periods for the treatment group was significantly greater ($F=4.42$ df2,75 $p<0.5$) than the change in the mean score of the material control group but not the control group. Although this is not conclusive evidence to reject the null hypothesis, greater support for rejecting the null hypothesis arises due to the lack of a three way interaction being computed. This finding indicated that the treatment group performed better than both control groups regardless of cognitive style.

Table 10

Three-way ANOVA of Pre and Posttest Impulsivity Index Scores on M.F.F. Test

	DF.	Mean Squares	F-Ratio	Probability
A (Cognitive style)	1,75	226.815	77.911	.001
B (Groups)	2,75	7.904	2.715	.073
AxB	2,75	4.084	1.403	.252
C (Periods)	1,75	42.689	46.119	.001
AC	1,75	3.419	3.694	.058
BC	2,75	5.920	6.395	.003
AxBxC	2,75	1.007	1.088	.342

Scheffe Tests for Impulsivity index

	F-Ratio	df	Probability
Groups 1 and 2	4.42	2,75	.05
Groups 2 and 3	2.22	2,75	not significant
Groups 1 and 3	.98	2,75	not significant

Note: Means and standard deviations of the three way ANOVA on the M.F.F. test can be reviewed in table 4.

A three way ANOVA was calculated for error scores on the M.F.F. test. This analysis (see Table 11) produced a significant effects for cognitive style (impulsive vs reflective), groups and periods (pre-posttesting). There were also significant interaction effects between cognitive style by periods and groups by periods but not for cognitive style by groups. A significant cognitive style by groups by periods was not obtained for errors on the M.F.F. test. To determine if there were significant differences in the mean error scores among reflective groups, a series of Scheffe tests of significance were conducted (see Table 11). The change in the mean error score for the reflective treatment group was significantly greater than the change in the mean error scores of the reflective control groups. Subsequently, these findings indicated that the reflective students in the treatment group had significantly less errors that those students in the control groups.

Based upon the M.F.F. test variables of impulsivity index and errors, the null hypothesis is rejected. The reflective students who received the classroom S.I.T. program became significantly more reflective than their reflective counterparts and had significantly less errors on the M.F.F. test.

Support for the previously stated hypothesis that a superior level of reflectivity might contribute to greater generalization of treatment effects arises as a result of reviewing the reflective subjects performance on the M.F.F.

Table 11

Three-way ANOVA for Errors on M.F.F. Test

	df	Mean Squares	F-Ratio	Probability
A (Cognitive style)	1,75	1735.734	72.148	.001
B (Groups)	2,75	80.038	3.327	.041
AxB	2,75	24.471	1.017	.367
C (Periods)	1,75	549.950	66.057	.001
AC	1,75	80.158	9.628	.003
BC	2,75	69.795	8.383	.001
AxBxC	2,75	6.335	.761	.471

Scheffe Tests

	F-Ratio	df	Probability
Groups 1 and 2	10.06	2,75	.01
Groups 1 and 3	3.8	2,75	.05
Groups 2 and 3	1.62	2,75	not significant

Note: Means and standard deviations of the three way ANOVA on the M.F.F. test can be examined in table 4.

test. Firstly, the reflective treatment students demonstrated through their impulsivity index scores, a superior level of reflectivity compared to the reflective students in the material control group. The absence of significant differences in reflectivity between the treatment and the control group may be a result of a ceiling effect arising for the treatment group. Secondly, the reflective students in the treatment group had significantly fewer errors on the M.F.F. test compared to the other two control groups. These findings indicated that students who were already considered to be reflective for their age were able to increase their level of reflectivity significantly.

What implications might these findings have for educators? One implication is that it appears that reflective students can increase their level of reflectivity on a measure of conceptual tempo. In addition, this increase appears to not only improve the reflective students performance (fewer errors on M.F.F. test) but possibly contributes to their ability to generalize treatment effects across tasks (i.e. W.R.A.T., Gates-MacGinitie and Otis-Lennon). Should these findings be substantiated through additional empirical evidence, one could clearly envision the merit of implementing this program as a generalized teaching strategy within the curriculum of regular grade 2 students.

Upon reviewing all of the data analysed to ascertain the effects that the classroom S.I.T. program had upon cognitive style and student performance on various cognitive tasks, a number of significant findings emerge. The first being, where other studies demonstrated that an individual S.I.T. program's ability to increase the reflectivity of students, this classroom S.I.T. program was able to increase the level of reflectivity for regular grade 2 students. In addition, this increase in reflectivity resulted in student performance increasing (fewer errors) without the students response time experiencing a significant increase, contributing to the child developing the preferred fast accurate response style. This research finding also indicated that the degree of influence that cognitive style has upon student performance appears to be dependent upon the difficulty of the cognitive task, and the resultant influence that conceptual tempo has upon performing the task.

Another significant finding which appears to emerge upon analyzing the data on student cognitive style and performance, is the fact that exposure to treatment materials, (material control group) did not significantly influence student reflectivity or performance. Subsequently, this suggests that the manner in which the materials are being taught (i.e. S.I.T. program), is the salient factor contributing to treatment effects. On the other hand, due to the large number of intervening variables which comprise the Peter Parrot S.I.T. program (i.e. cognitive modeling, self-instructions), one is unable to comment about the effect that each component variable has upon the treatment outcome.

Lastly, generalization of treatment effects by the reflective students in the treatment program offered some insightful information for practitioners. Taken one step further, providing students who are reflective for their age with a reflective self-instructional strategy, enhanced student performance significantly on a task measuring reading ability and conceptual tempo as well as produced recognizably superior performances in reading comprehension and mental ability. Greater research evidence is needed to support these findings before educators can confidently ascertain the significant effect that a classroom S.I.T. program has upon student performance. Hopefully, additional programs similar to Peter Parrot will be implemented within the school system as they will not only help students to become more reflective in their behaviour but improve student performance.

J. Null Hypothesis #7

The percentage of students in the classroom S.I.T. program who self-report using self-verbalizations to guide their behavior will not be greater than the percentage of students in the control groups.

Prior to analyzing the data obtained from the students self-reports, levels of agreement between examiner ratings of student self-verbalizations were calculated five weeks after posttest conditions. Agreement was determined by having the two examiners rate video-taped replays of student self-reports. The interrater level of agreement on part I and part II of the cognitive assessment was 85 and 90 percent respectively. In addition, the intrarater level of agreement was determined by comparing the number of identical ratings made by one of the examiners during the initial assessment with his ratings made 5 weeks after posttest from video taped self-reports. This produced intrarater levels of agreement for parts I and II of 80 and 85 percent. Based upon these high levels of agreement, one would conclude that the ratings of student self-verbalizations were highly consistent between examiners and over time.

Upon establishing that a mean self-verbalization score of 4 or greater from the two self-reports given by subjects would serve as the criterion score for using self-verbalization appropriately, an analysis was conducted to determine the percentage of subjects representative in each group. This resulted in the following percentage scores 85.7, 33.3 and 38.5 being achieved by the treatment, material control and control group respectively. Utilizing the same criterion score for appropriate self-verbalization, a chi-square analysis comparing the treatment group to the two control groups indicated that the porportion of appropriate and non-appropriate, self-verbalizers in the treatment group were significantly different (Chi-Square

16.34 p<.0001). Based upon these findings one would reject the null hypothesis as the treatment group had a significantly greater percentage of subjects who self-reported using self-verbalizations appropriately.

This study established that a significantly greater number of subjects who received the treatment program would self-report using self-verbalization. These findings may not be surprising upon recognizing that treatment subjects were trained to become aware of their self-verbalizations which could have created some problems for the students in the control groups during the cognitive assessment component of the study. Nonetheless, if self-verbalization is a major variable in a S.I.T. program, one needs to be able to first measure its presence and secondly determine its utility (Copeland, 1981).

Recognizing that there are limitations with attempting to have subjects self-report what they are thinking, the researcher incorporated two procedures for assessing student self-verbalization. This dual assessment served a twofold purpose. Because during the piloting of the reconstructive procedures, subjects were having difficulty reporting their thoughts while viewing a video-tape of themselves, an alternative format was implemented. The purpose of this format was to increase the child's level of recall by association. This was achieved by having the student look at the actual M.F.F. test booklet while commenting on his/her thoughts. A secondary purpose of this additional cognitive assessment format was that it provided the researcher with a comparative analyses of subject self-verbalization.

According to the rater's who rated the students self-reports and the data obtained, neither format offered any distinct advantage. One would conclude that the use of reconstructive procedures with children in grade two serves as an adequate measure of cognitive assessment. If the task were to be repeated again, greater amounts of time would be used to have subjects spend time observing themselves on television as this factor tended to improve the ability of students to self-report during the study as compared to the conditions during piloting.

Another positive component of the cognitive assessment procedures was the inclusion of a validity check on the self-report recording sheet. More specifically, if a child self-reported that he/she did not choose one of the alternatives from an M.F.F. test question, but did during the completion of the test, the scorer coded this self-report to acknowledge the discrepancy between test performance and information self-reported. Of the 81 subjects who self-reported, 8 students were found to have self-reports which were incongruent with their test performance. This indicated that 90 percent of the students self-reports matched their test performance leading one to believe that there was a high degree of consistency between student self-reports and their test behavior. Procedures similar to this might be beneficial for future research as greater levels of confidence could be attributed to the consistency of student self-reports.

Evaluating the students self-verbalizations did not appear to be as onerous a task as one might expect. The 5 point rating scale used to determine quality of self-verbalizations being reported by students posed little problem for raters to score. This was demonstrated by the high degree of agreement over time and between raters. These findings are encouraging for those researchers attempting to assess the covert self-verbalizations of students. Moreover, greater credibility can be levied upon the cognitive assessment technique of reconstructive procedures with grade 2 students.

K. Null Hypothesis #8

Those subjects who self-report using appropriate self-verbalizations to guide their behavior will not demonstrate superior performances on the M.F.F. test.

In order to conduct this analysis, subjects were divided, into two groups based upon the mean self-verbalization score obtained from their two self-reports. Group one included 7 subjects who's self-reports indicated that their self-verbalizations were either not being used or were being used inappropriately (i.e. mean score of ≤ 2 on self-reports). Group two were those subjects who demonstrated through self-reports the appropriate use of self-verbalizations (i.e. mean score ≥ 4).

A one way ANOVA calculating impulsivity index scores from M.F.F. posttesting resulted in a significant main effect (F=4.091 df 1,48 p<.049) for groups (appropriate vs inappropriate self-verbalization). The null hypothesis was rejected on the basis of these findings as those subjects who used appropriate self-verbalization demonstrated a significantly more reflective score on the M.F.F. test.

A one way analysis conducted on the number of errors from M.F.F. posttesting produced significant findings (F=4.443, df 1,48, p<.04) for the variable groups. This analysis indicated that the appropriate use of self-verbalizations resulted in fewer errors being made, and a superior performance being obtained. However, a similar analysis computed on posttest latency scores on the M.F.F. test did not produce a significant main effects (F=2.18, df 1,48, p<.146). These findings suggested that the use of self-verbalization did not unnecessarily increase the response rate of subjects utilizing self-verbalization to guide their behavior.

Based upon this series of analyses, one would conclude that those subjects who used self-verbalizations appropriately demonstrated greater reflectivity and obtained superior performances on a task measuring conceptual tempo without requiring a significantly greater amount of time to respond.

Previous studies (Genshaft & Hirt, 1979; Kendall & Wilcox, 1980; and Parrish & Erickson, 1981) have often negated to ascertain if the use of self-verbalizations has contributed to treatment efficacy. Those studies (Camp et al, 1977; Eastman & Rasbury, 1981 and Robin et al, 1975) which did, did not always obtain favourable findings. This study clearly indicated that students who self-reported using self-verbalizations appropriately were significantly more reflective than those subjects who had not. These self-verbalizers also enjoyed having a superior performance on the M.F.F. test due to the fewer number of errors obtained. In addition, failure to obtain significant differences in latency scores on the M.F.F. test between those students who used self-verbalizations appropriately and those who either failed to use self-verbalization appropriately or not at all, indicated that there was no evidence to suggest that the appropriate use of self-verbalizations impeded the student's response time.

These findings are significant in that they lend creedance to the factor that appropriate self-verbalization contributes to superior performance and greater reflectivity but does not necessarily result in subjects response time being significantly increased. Support for these findings emerge from research (Luria, 1961) which contends that the amount of self-verbalization required, decreases porportionally to the degree of mastery the child has of the task. These findings would imply that educators should encourage students to engage in self-verbalizations particularily when the task before them is difficult and/or numerous errors are being made.

In summation, the findings of this study have significant implications for educators. Firstly, a classroom program which was developed and implemented for grade 2 students received the endorsement of students and teachers through their positive evaluations. This classroom as opposed to an individual S.I.T. program was able to increase the level of reflectivity and performance (fewer errors) for not ony the impulsive students but the reflective students on a measure of conceptual tempo. This reflective shift in conceptual-tempo resulted in the reflective treatment subjects demonstrating a superior performance on the reading subtest of the W.R.A.T.. Although an increase in reflectivity by the reflective treatment students did not produce significant results for the variables of reading comprehensive and mental ability, a trend was established as these students achieved superior scores. Upon considering the brevity of the training program, one has to be optimistic about the non-academic and academic gains achieved by the students who received the classroom S.I.T. program. Lastly, the findings of this study indicated that the appropriate use of self-verbalization resulted in greater levels of reflectivity and a superior performance being obtained on a measure of conceptual tempo, without significantly increasing the students response time.

VI. CHAPTER 6

CONCLUSIONS AND RECOMMENDATIONS

A study was conducted in the Northern Alberta community of Morinville. The purpose of this research was threefold. Firstly, to develop and implement a classroom S.I.T. program which students and teachers would be asked to evaluate. Another aim was to determine the ability of this classroom S.I.T. program to increase the reflectivity of grade 2 students as well as determine what effects this increase in reflectivity might have upon student performance on other cognitive tasks. Lastly, the researcher wanted to establish if a relationship existed between the use of self-verbalization and student performance on a measure of conceptual tempo. Based upon the results of the study, a number of conclusions can be drawn:

1. The classrom S.I.T. program was well received by students and teachers as indicated by their positive evaluations.
2. The classroom S.I.T. program was able to increase the level of reflectivity and the performance of grade 2 students on a measure of conceptual tempo.
3. The reflective subgroup within the treatment group also demonstrated a significant increase in their level of reflectivity and performance on a measure of conceptual tempo.
4. The reflective subgroup within the treatment group demonstrated a superior performance on a task of

word recognition.

5. The cognitive assessment technique of reconstructive procedures appeared to be an appropriate cognitive assessment procedure to assess self-verbalization of grade 2 students as it resulted in student self-reports being highly consistent with their test behavior.
6. A significantly greater percentage of students who received the classroom S.I.T. program reported using self-verbalization.
7. Students who used self-verbalization appropriately demonstrated higher levels of reflectivity and achieved a superior performance on a measure of conceptual tempo.

A. Relevance of Findings to Theory

The results of this research lend support for conceptualizing self-instructional training within the theoretical framework of S-O-R theory. That is, behavior change is a bi-directional process in which organismic and environmental variables interact. In this study, the organismic variable, (0) of self-verbalization (verbal mediation) was found to be a salient factor in assisting students develop a more reflective cognitive style. In addition, the appropriate use of self-verbalization brought about a significant increase in performance (fewer errors) on a measure of conceptual-tempo as well as on a task of word recognition. Environmental variables were also taken into consideration as the S.I.T. program encorporated the principles of respondent and operant conditioning. However, because S.I.T. assumes a bi-directional approach to behavior change, it becomes difficult to ascertain the effects that each organismic and environmental variable has upon the behavior change process. Subsequently additional research is required before the influence of each organismic and environmental variable can be determined. Once this data is collected, a more sophisticated and appropriate theoretical model of behavior change can be developed to replace the rather simplistic S-O-R model.

Taking a more microscopic analysis of theory, this study offered theoretical support for some of the principles of self-instructional training. Research findings indicated that appropriate self-verbalization was a salient treatment component to encorporate within the training program. However, the significance of two other program training components (i.e. cognitive modeling and use of a strategy) could not be determined either independently or collectively within the parameters of this research design.

Another salient contribution resulting from this study was the fact that grade 2 students could be taught self-instructional training within the regular classroom setting. Instruction did not have to be provided on an individual basis but with a class as a whole. Despite the large numbers being trained simultaneously, it appeared that students were able to learn how to use self-verbalization to guide and control their behavior effectively. One might conclude that training as a classroom facilitated student acquisition of the Peter Parrot program due to students being exposed to a variety of peer and adult models who demonstrated how to not only use self-verbalization appropriately, but also develop an effective plan for completing the task successfully.

What theoretical implications did this research have upon the literature of conceptual-tempo? One area of significance was that the intervention strategy of S.I.T. was not only effective in increasing the level of reflectivity of impulsive students, but also those students who were considered to be reflective for their age. These results suggested that all students, be they either reflective or impulsive for their age, could acquire a more reflective cognitive style.

According to norms developed by Salkind and Wright (1977) for the M.F.F. test, these 8 year old students who received the S.I.T. program exhibited a level of reflectivity expected of the average 10 and 11 year old. Findings like this cause one to question the degree of influence that age has upon the degree of reflectivity exhibited. Possibly as Vygotsky (1978) suggested in his theory of zone of proximal development, those students who received training learned to function at their optimal level of performance rather than at their developmental level of performance.

The findings of this research would also suggest that the acquisition and generalization of a reflective cognitive style to be developmental in nature. More specifically, students who were impulsive for their age were able to demonstrate an increase in reflectivity on a task measuring conceptual tempo (M.F.F. test). Similarly, students who were considered to be reflective for their age prior to treatment also exhibited a significant increase in level of reflectivity on the M.F.F. test. However, it appeared that only this later group (previously reflective students) who received the S.I.T. program was able to generalize this reflective conceptual tempo to another cognitive task (word recognition). A similar pattern emerged for this group on other cognitive tasks (mental ability and reading comprehension) as only these reflective students obtained superior performances. To conclude, it would appear that students who are impulsive for their age must first develop a reflective cognitive style and through consolidation and practice demonstrate an even more superior level of reflectivity before there will be generalization to other cognitive tasks. One must keep in mind that the degree of generalization will be restricted by the effect that reflectivity has upon completion of the task.

B. Implications of a classroom S.I.T. for Educators

This study had some specific implications for educators. Firstly, a program which permits classroom instruction is of significantly greater utility to teachers who are restricted by the amount of individual instruction that can be made available to students. This classroom S.I.T. program also provided educators with ten comprehensive lesson plans which served as a guide for instruction. Unlike many other psycho-educational programs, this program utilized teaching materials from the regular school curriculum. Because of this, new curriculum materials were not required, as existing materials were blended into the training program and in this way, the learning of the prescribed curriculum was not disrupted.

An educational program which has been evaluated positively by teachers and students has significantly greater likelihood of being successful within the classroom. Evaluative feedback from teachers and students involved in the study was positive. This positive attitude served as a source of motivation for program instructors and paraticipants. One aspect of the S.I.T. program reported to be of considerable enjoyment and motivation was the use of the Peter Parrot puppet. Students and teachers found the puppet to be a creative and excellent model for demonstrating how to use self-verbalization appropriately.

Another component of the program deemed to be beneficial was that the general strategy taught to students was easily acquired. Although the strategy taught to students was general in the sense of there being six questions to be asked, each student had the flexibility to alter the complexity of the plan developed as well as the content and quality of self-verbalization required to carry out the plan, thus facilitating greater task success. This general strategy appeared to have the additional advantage of being easily implemented across a variety of tasks increasing the likelihood of treatment generalization.

Recognizing that impulsive students do not enjoy as much academic success as their reflective peers, one becomes rather optimistic about the merit that a classroom S.I.T. program would have for students. This study indicated that all students, be they either impulsive or reflective for their age, achieved a significant increase in reflectivity. In addition, those students who were initially reflective for their age demonstrated significantly greater performance on a word recognition task. Although significance was only approached by the reflective students within the classroom S.I.T. program on tasks measuring mental ability and reading comprehension, one has to be encouraged by the positive effects that this program would have upon these cognitive tasks as well as other academic tasks.

In order to maintain a balanced perspective as to the implications and significance of this S.I.T. program for educators, several statements are in order. The first being that the author is not suggesting that all students should use the Peter Parrot strategy for every task assigned. Surely as educators, we recognize that discretion is required by the teacher in order to determine when and which students would benefit from the Peter Parrot program. Another factor to be considered is that the program developed was intended for students in division I (i.e., grades 1 to 4). This is not to suggest that older students would not benefit from a classroom S.I.T. program, provided that the program encorporated age appropriate methods of instruction. Similarly, the program as it exists, served only as a guide for elementary teachers. Subsequently, teachers would have to tailor the prescribed lesson plans to meet the needs of their students. Lastly, before teachers could confidently instruct students how to use Peter Parrot's program, inservice training in the theoretical and practical principles of self-instructional training would be required in order to enhance the quality of instruction and student success.

Although some conclusions can be made as a result of the findings obtained in this study, a significant number of questions have yet to be answered. Consequently, a number of recommendations can be made for future studies to address:

1. Develop a training manual which would provide teachers with the required theoretical and practical knowledge necessary to teach the Peter Parrot Classroom S.I.T. Program.
2. Examine the ability of classroom teachers to teach

the Peter Parrot Program?

3. Evaluate the specific components of a classroom S.I.T. program and their resultant contributions to treatment efficacy.
4. Investigate the effects that an increase in reflectivity has upon student performance and generalization of this response style across tasks, settings and individuals.
5. Construct more reliable and valid measures of conceptual tempo.
6. Assess the influence that the quantity, quality and type of self-verbalizations have upon student performance.
7. Investigate what types of strategies (general/specific) are most effective for use in the classroom.

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Appendix A

Lesson Plans and Training Materials Used in Classroom S.I.T. Program

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #1

Motivation Activities:

1. The use of a puppet (Peter Parrot) to serve as an animated character to introduce S.I.T. program.
2. Drawing a picture of parrot.

Teaching Objectives:

1. To introduce the concept of self-talk and how it serves to guide behavior.
2. To demonstrate to students how to use Peter Parrot's program to complete a task.
3. To have the students learn and practice "Peter Parrot's" program and its 5 rules.
4. To have children acknowledge the utility and advantages of using Peter Parrot's program.

Materials:

1. puppet of a parrot
2. overhead projector
3. transparencies for:
    1. Peter Parrot's rules (program)
    2. match to sample tasks,
       i) bus, ii) dog
4. paper for drawing picture of parrot

How to Attain Objectives:

1. Use puppet as animated character to stimulate self-talk (self-verbalization).

2. Utilize cognitive modeling by teacher to teach students:
    1. Peter Parrot's program
    2. how self-talk guides behavior
    3. advantages of using Peter Parrot's program
3. Have students practice Peter Parrot's program on a match to sample task and receive feedback.
4. Ask students questions about how, when, and the advantages of using Peter Parrot's program.
5. Have students write out Peter Parrot's 5 rules and rehearse them in order to be able to recall them.

Lesson Format

Part I

Introduction:

(A) Teacher:

"What is this?" (show students picture of a parrot). I brought along a friend with me today - Peter Parrot puppet. "What can parrots do that other birds can't do?" (i.e., sparrows, robins, etc.)

"Because parrots can talk, that makes them pretty smart."

"Can you talk?"

Student Response: "Yes."

(B) Teacher:

"That makes you pretty smart too."

"Do you know why being able to talk makes you smart?"

(C) Teacher:

"Peter Parrot says that because he can talk, he talks to himself in order to help him do better work. In fact, he believes that talking to yourself is so helpful to boys and girls that he has made a program for how to use self-talk to help you when you are doing schoolwork. Before I show you how using self-talk can help you do better work in school, we should first understand what Peter Parrot means by self-talk. Who can tell me what self-talk means?"

Student Responses:

1. It means talking to yourself.
2. It means thinking out loud in your mind.

(D) Teacher:

"Let's try saying something to ourselves so no one can hear us." Instruct students to say this statement to themselves - "Today is Monday."

Begin by having students initially saying this statement out loud. Gradually have them fade this statement from a whisper to becoming covert.

(E) Teacher:

"Do you remember the game that you played last week? (Match to sample task which has been previously completed). Can you remember how you sometimes made mistakes choosing which picture matched the picture at the top. Peter Parrot is going to show you how he uses talking to himself to do better work. When he uses self-talk, he doesn't make as many mistakes. Watch and listen!" The teacher then places puppet on his/her hand allowing the puppet of Peter Parrot to demonstrate to students how Peter Parrot does school work.

Transparency of the match to sample task (bus) is placed on overhead projector to serve as training activity.

(F) Teacher:

The teacher engages in cognitive modeling in order to demonstrate to the students how Peter Parrot's program can help them to select the correct picture.

(G) Teacher:

Upon successful completion of the task, the teacher asks students how Peter Parrot's program helped with choosing the correct alternatives.

Student Responses:

1. It helped to tell you what to do.
2. It gave you a plan.
3. It got you to slow down and work carefully.
4. You were able to figure out what to do.
5. You thought of a couple of ways of figuring out the correct response.
6. It made you think.
7. It helped you not to make as many mistakes because you had to look at all of the parts in the picture.

Some questions that the teacher can ask at this time:

1. What did Peter Parrot do that you don't do sometimes?
2. How could Peter Parrot's program help you in school?
3. When could you use his program?

Part II

(H) **Teacher:**

"Would you like to do better work in school? Peter Parrot's program can help you do better. Let's learn the 5 rules that he says to himself when he has a job to do."

Place 5 rules on overhead projector and have the children rehearse them. Ask the children why each rule is important?

(I) Peer-Modeling and Feedback:

Teacher:

"Would some of you like to try using Peter Parrot's program?" The teacher asks children at random to use Peter Parrot's program to complete another match to sample task. (Place transparency of dog on overhead projector.)

Each child is given feedback as to their use of Peter Parrot's program to complete match to sample task.

(J) Seat Work:

1. Have students print Peter Parrot's 5 rules (program) in their workbook. The students can then be challenged by the teacher to see who will be able to remember them tomorrow.
2. The children are allowed to draw a picture of a parrot once Peter Parrot's rules have been entered into their workbook.

Evaluation: (Formal and Informal)

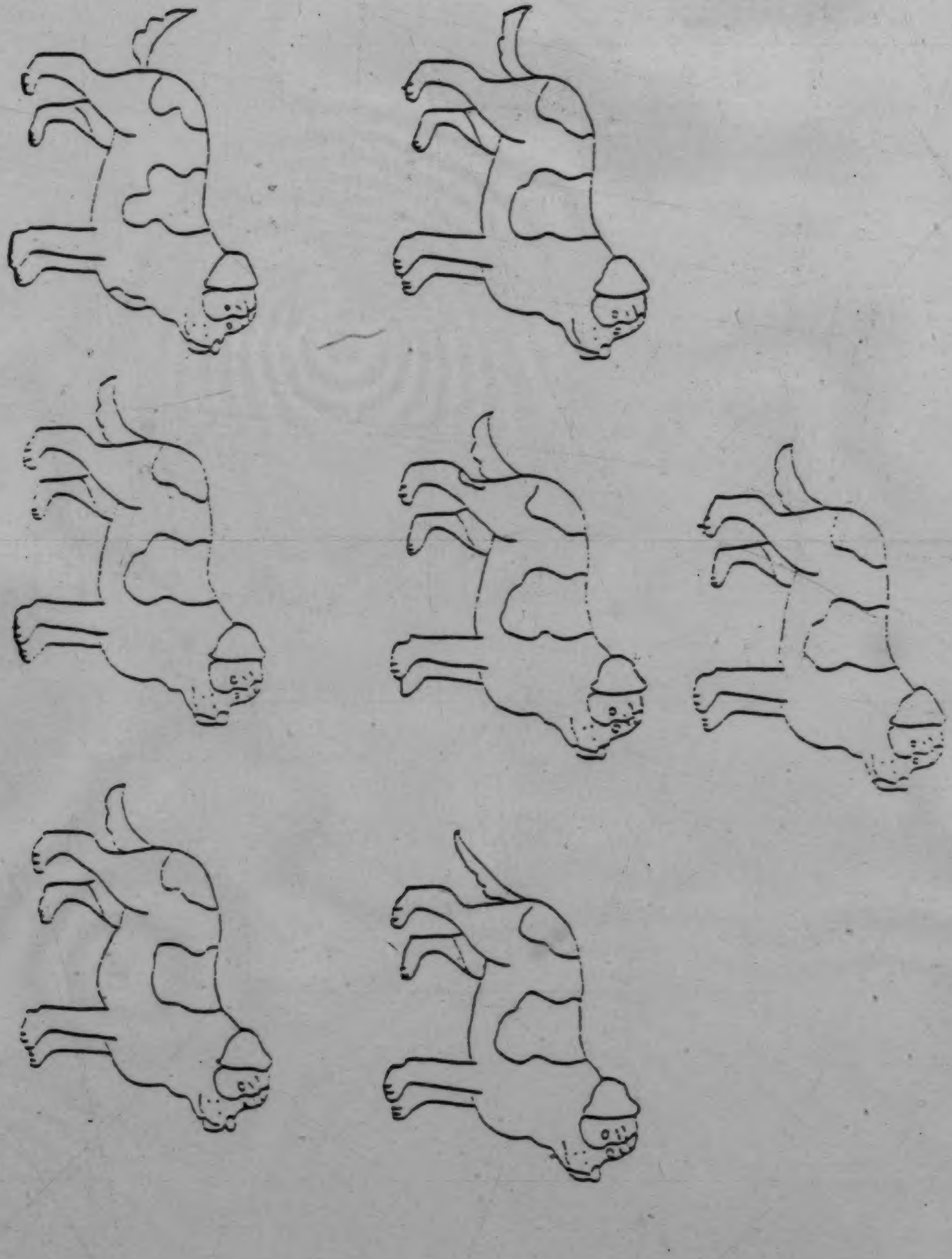
1. The ability of students to verbalize the advantages of using Peter Parrot's plan.
2. The student's desire to engage in use of Peter Parrot's plan.
3. The extent to which students are able to use Peter Parrot's plan to complete the match to sample tasks.

LESSON PLAN 1

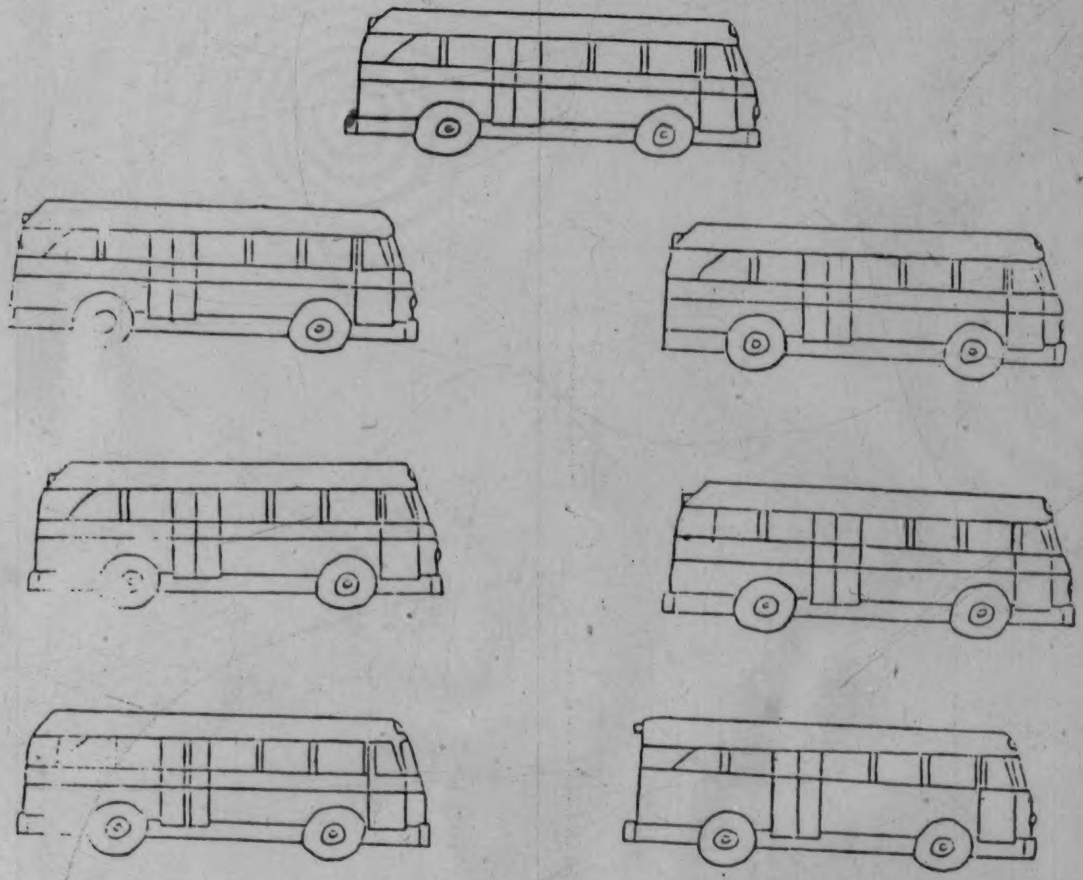
Peter Parrot's Rules

1. What am I supposed to do?
2. What do I need to know to do the work?
3. How can I do the work?
4. Is my plan working?
5. How did I do?

LESSON PLAN #1



LESSON PLAN #1



"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #2

Motivation Activities:

1. Have children use puppet of "Peter Parrot" when practicing his rules.
2. Simon Says game.

Objectives:

1. To have the children practice recalling Peter Parrot's program (5 rules).
2. To provide the students with opportunities to observe and to practice using Peter Parrot's program.
3. To have the students verbalize how Peter Parrot's rules can help them.
4. To give the students specific feedback as to their use as well as how other students used Peter Parrot's program to do school work.
5. To have students define the term self-talk.
6. To have the students practice using and identifying covert self-talk.
7. To implement self-monitoring procedures with students.

Materials:

1. Overhead projector
2. Transparencies
    1. Peter Parrot's 5 rules
    2. Rhyming Words #1
3. Worksheets

1. Rhyming Words #1
2. Rhyming Words #2

4. Peter Parrot puppet
5. Alarm clock
6. Self-monitoring forms

How Objectives to be Attained:

1. Have students rehearse orally Peter Parrot's 5 rules.
2. Have students observe cognitive modeling of Peter Parrot's program.
3. Have students practice and cognitively model Peter Parrot's program for their classmates.
4. Provide students with feedback about their use of Peter Parrot's program.
5. Have the students record their covert verbalizations on the self-monitoring forms.

Lesson Format

Part I

Review

Teacher: "Who did we meet yesterday?"

Students Response: "Peter Parrot."

Teacher: "What can Peter Parrot do that other birds can't do?"

Students Response: "He is able to use self-talk."

Teacher: "Who can remember what Peter Parrot taught us?"

Students Response: "He taught us that if we think aloud or talk to ourself - we will do better work."

Teacher: Ask students to explain what they think self-talk means.

Students Response:

1. talking in your mind
2. talking to yourself
3. thinking in your head.

Teacher:

"Because Peter Parrot feels that talking to yourself is so important, he has made a program for boys and girls to use. Who can remember the 5 rules that Peter Parrot uses in his program to help him do better school work?"

Teacher:

"Yesterday we learned that there were some advantages for using Peter Parrot's program. Can you remember how they helped you?"

Students Response:

1. It gave me a plan so I would work better.
2. It made me work slowly and carefully.
3. I learned to check my work over.
4. I learned to use self-talk which makes me think before I answer.

Part II

(A) Teacher:

"Today we are going to use Peter Parrot's program to do different school work. Watch!"

Teacher uses cognitive modeling to demonstrate how Poeter Parrot's program can be used to do rhyming words worksheet I. (Therefore teacher places transparency of

Rhyming Words I on overhead projector.)

(B) Teacher:

Asks the students to explain how Peter Parrot's program helped him/her to answer the rhymes correctly.

(C) Teacher:

Teacher randomly chooses children to model Peter Parrot's program for their classmates as they complete the rhyming words worksheet I that is on the overhead projector.

(D) Teacher:

After several students have had an opportunity to cognitively model Peter Parrot's program, ask the students to make comments about the plan used, the amount of self-talk, quality of self-talk, etc.

Students Responses:

1. All of us used the same rules but said different things.
2. Some of us used more self-talk than others.
3. The plans to do the worksheet were different.
4. It seemed easier to do the rhyming sheets.

Part III

(E) Teacher:

Asks the children if they have ever tried to talk to themselves without other people hearing them.

(F) Teacher:

Engage the children in the following self-talk exercise which helps the children to fade their overt self-talk to covert (internal) self-talk.

i Instruct the students to whisper this statement, "I like ice cream."

ii Instruct the children to whisper the statement again only quieter this time.

iii Have the students repeat the statement to themselves so that only they can hear it.

Explain to the children that they are using self-talk.

Teacher:

"Talking to yourself is what Peter Parrot calls self-talk or thinking aloud. Being able to talk to yourself while you are working will help you do better work. This is especially true if you use Peter Parrot's program."

Teacher:

"Do you know why being able to either whisper or talk to yourself when working in the classroom is important?

1. It's important because you won't bother other children when you're working.
2. Also, other children won't know what you're doing so it can be your secret.

(G) Teacher:

Explain to students that in order to help them use self-talk to improve their work you are going to give them a job to do while they are working at their desks. (Teacher distributes self-monitoring forms.)

(H) Teacher:

"Do you see this clock? I am going to set the alarm and it will ring while you are working at your desk. (Finishing rhyming worksheets II). What you are going to do is tell me if you were using self-talk or thinking aloud when the alarm rang."

Teacher:

Asks the students to look at the self-monitoring forms. If you were using self-talk just before the alarm rang, you will circle yes. If you were not using self-talk, circle no. Those of you who were using self-talk or thinking aloud when alarm rang, will print on this form what you were saying to yourself when the alarm rang.

(I) Teacher:

Handout the rhyming words worksheet II. Instruct the students to begin working on their rhyming handout. Remind them about using Peter Parrot's program and how talking to themselves will help them to do better work. (Note): Put transparency of rules on projector to help students recall the rules.)

(J) Teacher:

After 3 to 4 minutes have transpired, have the timer ring.

Teacher:

Ask students to fill in self-report form as you read each question.

Teacher:

1. "Was anything going through your mind?"
2. "Tell me what was going through your mind."

(K) Teacher:

Have the students then give you feedback as to their answers.

Some student responses to self-monitoring form:

1. Two students said that because the work was easy, they began to work without using Peter Parrot's rules.
2. Most students reported using self-talk, citing a phrase from worksheet.
3. One student said that she found it hard to remember what her self-talk was.

(L) Teacher:

Explain to the students that each day they will be asked to fill in this form while doing their seat work.

(M) Teacher:

Encourage the students to be honest about filling in forms. Explain that this game will help them to remember to use self-talk and Peter Parrot's program when they are working.

(N) Teacher:

Homework: Memorize Peter Parrot's five rules for a test tomorrow.

(O) Teacher:

Instructs students that they will play the Simon says game which will give them a chance to practice using their self-talk to guide and control their behavior.

Evaluation:

1. Ability of students to recall Peter Parrot's program from memory.
2. The quality of the responses given by the students when using Peter Parrot's program to complete a task.
3. Ability of the students to fill in their self-monitoring forms.

LESSON PLAN 2

SELF-MONITORING FORM

Name ____________________________________

Was anything going through your mind?

Yes No

Tell me what was going through your mind.

____

____

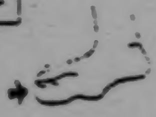
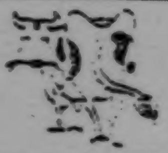
____

____

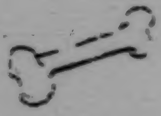
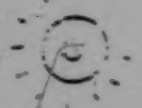
LESSON PLAN 2

Rhyming Words I

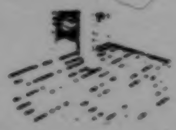
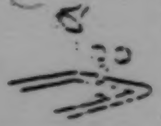
Show and grow rhyme with

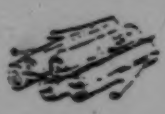
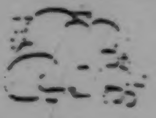
None and done rhyme with

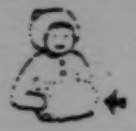
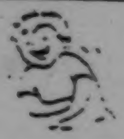
Flour and hour rhyme with

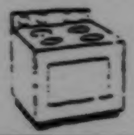
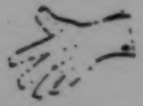
Could and should rhyme with

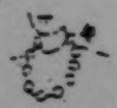
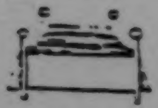
Rough and tough rhyme with

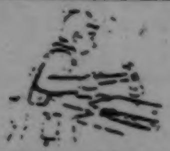
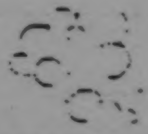
Love and shove rhyme with

Head and bread rhyme with

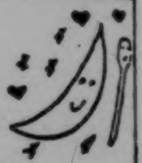
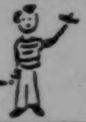
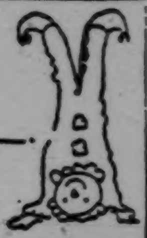



Crowned and drowned rhyme with

LESSON PLAN 2

RHYMING WORDS 2

A little gray mouse Found a hat for a ________. 	The man in the moon Fell in love with a ________. 
Old North Wind is blowing And soon it will be ________. 	The tiger in the zoo Likes to roar and growl at ________.
This old cat Is very ________. 	All little boys Like playing with ________ 
Little duck says, "Quack Quack Quack Let me ride on my Mother's ________." 	The funny clown Was upside ________. 
Jan put the can In the frying ________ 	I like to ride Down the long ________
Little bunny, fat and round Hops and jumps along the ________. 	Little boy with big bass drum Play a rat-tat-tat-tat ________.

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #3

Activities:

Students will receive a stamp for being able to properly sequence Peter Parrot's 5 rules.

Teaching Objectives:

1. To have students be able to recall the 5 rules in Peter Parrot's program
2. To have students practice using Peter Parrot's program and observe other students using the program to complete two Language Arts activities.
3. To have students become aware that Peter Parrot's program can be used for another school activity.
4. To review the self-monitoring procedures with the students.
5. To provide students with an opportunity to complete self-report forms.

Materials:

1. stamps
2. overhead projector
3. transparency
    1. picture clues
    2. Peter Parrot's rules
4. worksheets
    1. picture clues to unscramble letters
    2. how many words can you make from the word

automobile?

3. self-monitoring forms
4. alarm clock

How Objectives to be Attained:

1. Have students correctly sequence Peter Parrot's 5 rules.
2. Teacher and students engage in cognitive modeling while completing language arts worksheets.
3. Teacher will review self-monitoring procedures.
4. Students will complete self-reporting forms.

Lesson Format

Part I

A. Teacher:

Hands students a sheet of paper which has Peter Parrot's 5 rules written in a scrambled order. Children will have to put the correct number beside each rule.

B. Teacher:

Overhead of Peter Parrot's 5 rules will be put on the overhead projector. Students will correct their papers and stamps will be administered to those who were able to sequence the 5 rules. Those students who are unable to properly sequence the 5 rules can practice at home and attempt the test tomorrow in order to obtain a stamp.

Part II

C. Teacher:

Place transparency of Picture Clues for the unscrambling of letters on the overhead projector.

D. Teacher:

Ask students at random what they believe they are supposed to do.

Student Responses:

1. I'm supposed to make a word out of the letters.
2. I'm going to figure out how those letters can make the word that the picture says.

E. Teacher:

Ask students what they need to know to do the worksheet. (If students are having problems, ask them to figure out what things are important for doing the task.)

Student Responses:

1. How to spell words
2. You have to know what the pictures are

F. Teacher:

Have the students provide examples about how they would do the worksheet. What plan would you use?

Student Responses:

1. I would try to unscramble the letters
2. I would look at the picture first to see what word I'm trying to spell
3. I would tell myself to stop and think

G. Teacher:

"Which plans do you think would work?"

Student Responses:

1. All the plans would work

2. Some plans would work better than others

H. Teacher:

Randomly ask students to cognitively model Peter Parrot's program in order to demonstrate how they would complete some of the questions.

I. Teacher:

After several students have modeled Peter Parrot's program, the teacher should provide feedback as to:

1. the types of self-talk used
2. amount of self-talk used
3. how the self-talk guided their behavior and helped them to do the work
4. the different plans used by the students

Part III

J. Teacher:

"Do you remember that yesterday we talked about how you can use self-talk so that it won't bother your classmates?"

Have students practice explaining this statement until it becomes covert. "Peter Parrot's Program will help me in school."

K. Teacher:

Pass out self-monitoring forms.

i Ask the students what they are supposed to do with them?

ii "Do you know why you are using them?"

iii Review with the students how the self-monitoring procedure works.

L. Teacher:

Teacher passes out the Finding Words worksheet.

M. Teacher:

Have the students explain what they think they are supposed to do in order to complete worksheet. Remind students about using Peter Parrot's rules. After students have begun working at their seats, have the alarm ring.

N. Teacher:

Students will then fill out self-monitoring forms.

O. Teacher:

Have students give feedback as to their responses on the self-report forms.

Teacher:

Summarize the responses reported by the students as to the types, quality and quantity of information recorded.

Mention to the children that before they begin to answer the questions on the worksheet, that they should have self-verbalized Peter Parrot's first 3 rules.

P. Teacher:

Have the students complete their worksheets and then have the necessary corrections made.

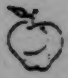
Evaluation:

1. Students' performance on recall test of Peter Parrot's program.
2. The competency of the students to implement Peter

Parrot's program.

3. Self-monitoring forms will be collected to determine the quality and quantity of the self-reports obtained.

LESSON PLAN 3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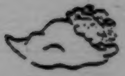
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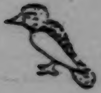
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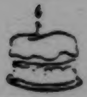
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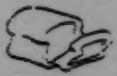
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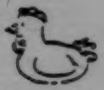
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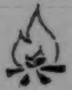
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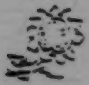
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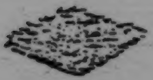
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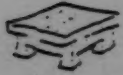
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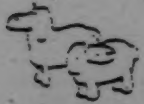
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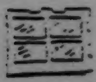
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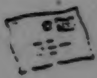
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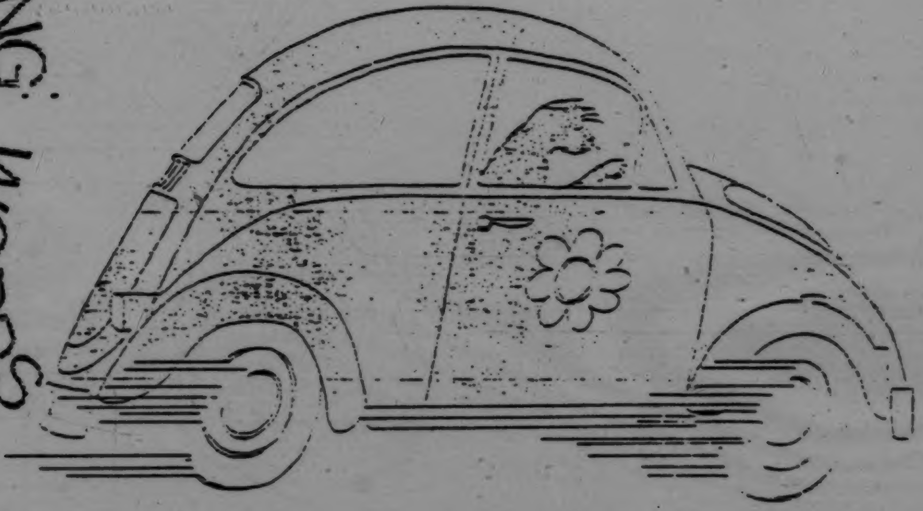
LESSON PLAN 3

FINDING WORDS

How many
words with three
or more letters
can you make
from the word
AUTOMOBILE?



SCORECARD:

20 or more words: Speed ace
15-20 words: Race Driver
10-15 words: Beginner Driver
5-10 words: Out of gas

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #4

Motivation Activities:

Upon completion of work assigned, students will be able to complete the magician's handout.

Teaching Objectives:

1. To demonstrate the importance of using Peter Parrot's first 3 rules before beginning a job.
2. To have students practice using Peter Parrot's program on a mathematical task.
3. To have students evaluate how well they use Peter Parrot's program.
4. To continue to have students practice self-monitoring what is going through their mind when they are doing a task.
5. To have students successfully monitor their covert self-verbalizations.

Materials:

1. overhead projector
2. transparencies
    1. recognizing and counting shapes
3. worksheets:
    1. recognizing and counting shapes
    2. math subtraction sheet
    3. magician
4. Peter Parrot puppet

5. Self-monitoring forms
6. alarm clock

How Objectives to be Attained:

1. By using the example of building a house, have students verbalize the importance of Peter Parrot's first 3 rules.
2. Student will engage in cognitive modeling of Peter Parrot's program.
3. Students will receive feedback as to their ability to use Peter Parrot's program.
4. Students will complete self-monitoring forms.
5. Students will be asked to report on their ability to self-report their covert self-verbalizations.

Lesson Format

Part I

Review

(A) Teacher:

"What did we use Peter Parrot's program to help us with yesterday?"

Student Response:

"To unscramble letters to make words."

(B) Teacher:

"How did Peter Parrot's program help you?"

Student Responses:

1. It gave myself a plan as to how to make words.
2. I was able to figure out how to make more words.
3. I learned that there were a number of different ways to

make words.

(C) Comment:

Because children are anxious to begin answering questions or do their seatwork, they often fail to employ Peter Parrot's first three rules which can result in the child's performance being inferior. Consequently, it is important for children to do so before beginning their work.

An interesting example to demonstrate the importance of (1) figuring out what you're supposed to do, (2) establishing what you need to know to complete the job as well as (3) making a plan before you begin, can best be explained through the building of a house.

Teacher:

"Do you remember yesterday that some of you started to do your work without using Peter Parrot's first 3 rules? Let's learn why we should use his first 3 rules."

Teacher:

"If I told you to build me a house, why would Peter Parrot's first rule be important?"

Student Response:

"You won't know what kind of house to build, how big, how many bathrooms, etc."

Teacher:

"Why would rule #2 be important if you were building a house?"

Student Response:

"You would have to know how to do electrical work, plumbing, carpentry, etc."

Teacher:

"Why would it be important to have a plan?"

Student Responses:

1. So you would make sure that you had doors for each room.
2. You want to know where things go and how big to make them.
3. I would not want to forget an important room (i.e. bathroom).

Part II

(D) Teacher:

"Today, we are going to use Peter Parrot's program to do different school work."

Note: Inform children that if they work hard today they'll get a special worksheet to take home.

(E) Teacher:

Place overhead of recognizing and counting the various shapes on the projector.

(F) Teacher:

Randomly ask students how he/she would use Peter Parrot's program to complete this task.

(G) Teacher:

Inform those students who are not selected that they will be asked to give feedback as to how well their peers used Peter Parrot's program. (This is done upon the completion of a student's modeled behavior).

(H) Teacher:

Have students give feedback as to the following:

1. Was the task to be completed explained?
2. Did the student know what was needed to be known to complete the task?
3. What plan was used by the student?
4. Did the student check to see if the plan was working?

(I) Teacher:

After several students have modeled the plan, ask students to comment about how the plans differed, i. e.:

a. The amount of self-talk used.
b. The different plans used.
c. What things they chose to verbalize.
d. How fast they worked.

Note:

On the shapes activity, the children had to identify how many triangles there were. This activity served as a beneficial learning activity as there were 5 triangles on the worksheet, but there were only 3 which were identical to the model shown (equilaterial). This served as a positive training example because if the child didn't develop a thorough plan, this would result in mistakes being made.

This exercise also helped to demonstrate:

1. Identifying the number of triangles was more challenging than other shapes. Therefore, this necessitated a greater amount of self-talk or self-verbalization because of task difficulty.
2. Furthermore, children often make mistakes as to the number of shapes because they do not include within their plan a system for systematically searching for the shapes which results in errors being made.
3. Because errors occur as a result of not working systematically, children experience the benefit of checking their responses over.

(J) Teacher:

Give student handout of Magician and tell them that they can take it home because they have worked very well.

Part III

(K) Teacher:

Pass out self-monitoring forms and instruct the children that they will answer the form after the alarm rings.

(L) Teacher:

Give students work assignment, and explain to them what they have to do (subtraction worksheet).

(M) Teacher:

Set timer to ring in 5 minutes.

(N) Teacher:

When timer rings, have students complete the self-monitoring forms.

(O) Teacher:

Instruct the students to complete subtraction worksheet and make corrections upon their completion of task.

(P) Teacher:

1. Ask the students who circled "yes," what was going through their mind?
2. Have those students who responded "no" explain what, if any, problems they were having.
3. If children are having difficulty monitoring or using covert self-talk while working, have the class practice fading this statement. "I can talk to myself."
   Procedure for fading statement:
   1. out loud
   2. whisper
   3. faintly verbalize
   4. spoken covertly so no one can hear
      (Have students move lips to ensure covert self-talk is being used.)
4. Those students who circled yes on the self-monitoring form can provide oral reports of what was going through their minds.

(Q) Teacher:

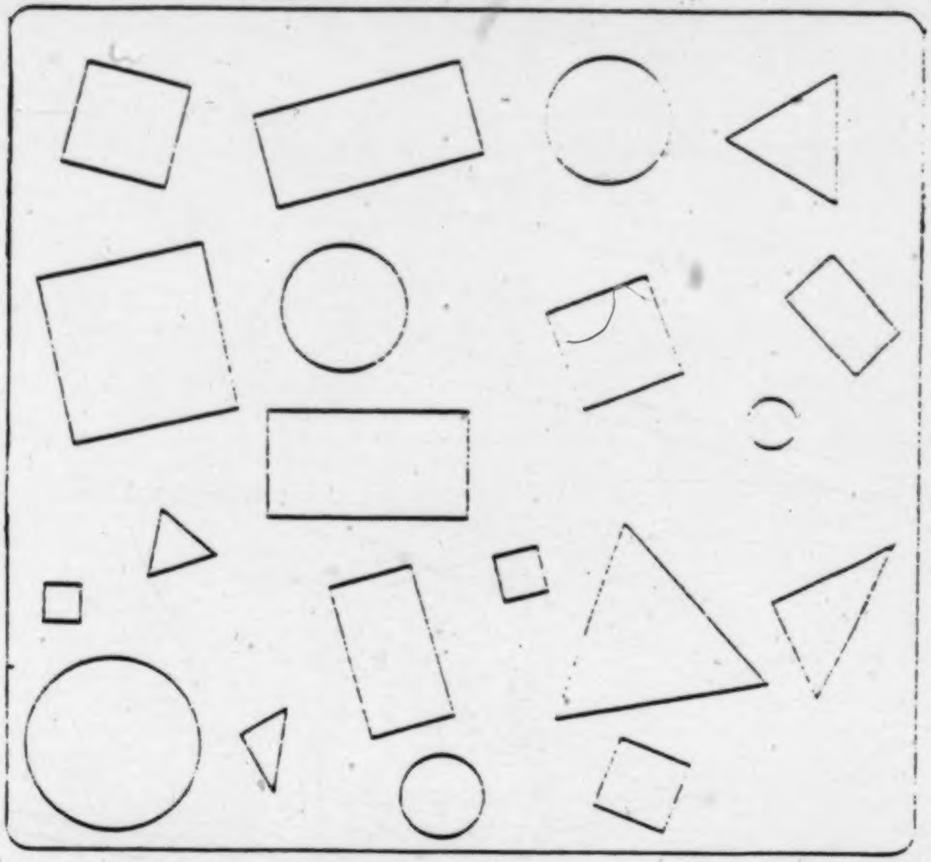
Collect students' self-monitoring forms and praise them for their efforts.

Evaluation:

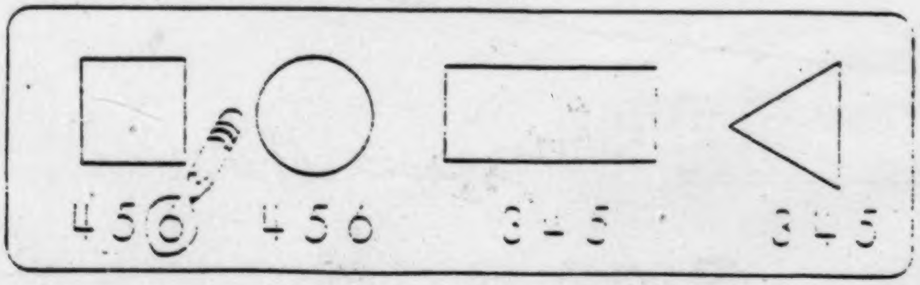
1. The statements made by the students in regards to the importance of using Peter Parrot's first three rules if they were building a house.
2. Ability of students to give feedback to peers about their use of Peter Parrot's program.
3. Students' responses on the self-monitoring forms will provide valuable information.

LESSON PLAN 4

Color the same shapes the same color.

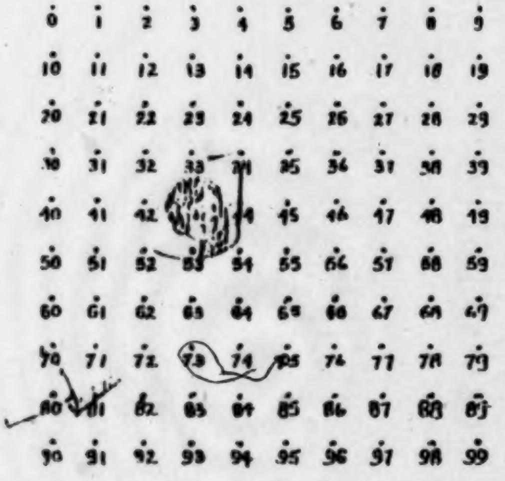


How many ? Circle each correct number.



LESSON PLAN 4

To connect the dots, complete each row of problems below. Start at the dot having the same number as your first answer. Draw a line to the dot for your second answer. Keep going until you reach your last answer.

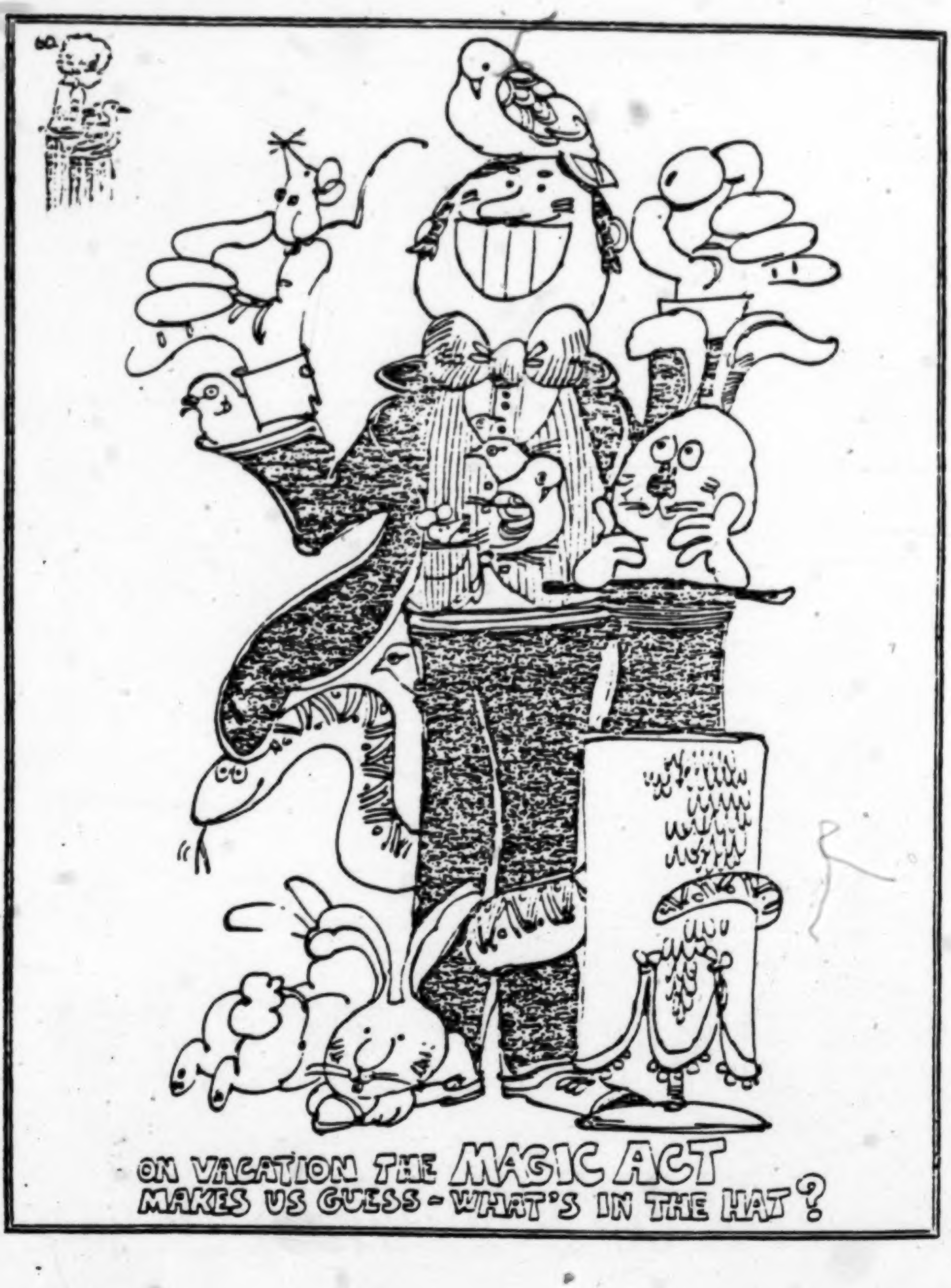


$\begin{array}{r} 87 \\ -87 \\ \hline \end{array}$ $\begin{array}{r} 77 \\ -35 \\ \hline \end{array}$ $\begin{array}{r} 96 \\ -44 \\ \hline \end{array}$

$\begin{array}{r} 92 \\ -32 \\ \hline \end{array}$ $\begin{array}{r} 88 \\ -16 \\ \hline \end{array}$ $\begin{array}{r} 99 \\ -8 \\ \hline \end{array}$ $\begin{array}{r} 98 \\ -23 \\ \hline \end{array}$ $\begin{array}{r} 94 \\ -0 \\ \hline \end{array}$ $\begin{array}{r} 88 \\ -20 \\ \hline \end{array}$

$\begin{array}{r} 87 \\ -21 \\ \hline \end{array}$ $\begin{array}{r} 69 \\ -21 \\ \hline \end{array}$ $\begin{array}{r} 59 \\ -30 \\ \hline \end{array}$ $\begin{array}{r} 67 \\ -40 \\ \hline \end{array}$ $\begin{array}{r} 57 \\ -22 \\ \hline \end{array}$ $\begin{array}{r} 98 \\ -44 \\ \hline \end{array}$

LESSON PLAN 4


ON VACATION THE MAGIC ACT
MAKES US GUESS - WHAT'S IN THE HAT?

LESSON PLAN 4

Instructions for the magician handout.

Teacher: You are to find out how many mice, birds, snakes and rabbits the magician has.

Answer:

(a)	Mice	2
(b)	Birds	6
(c)	Snakes	1
(d)	Rabbits	3

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #5

Motivation Activities:

1. Play Robot Game. (Students are instructed to repeat the commands given to them covertly before they move. ie. Teacher says "Robot take 2 steps ahead." The idea is to see how well they can follow instructions. This activity also gives them an opportunity to practice making covert self-verbalizations to guide their behavior.)
2. Have a competition to determine which team can give the most examples of when they can use Peter Parrot's program.

Teaching Objectives:

1. To have the children practice using covert self-talking to guide their behavior.
2. To demonstrate to the children when they can use Peter Parrot's program.
3. To continue to have the children self-monitor their covert self-verbalization.

Materials:

1. overhead projector
2. transparency of headings to outline when they might use Peter Parrot's program
    1. at school
    2. at home
    3. at play

3. worksheet - word endings
4. self-monitoring forms
5. alarm clock

How Objectives to be Attained:

1. Allow children to participate in Robot Game.
2. Have children make a list based upon experiences of when they have used Peter Parrot's program.
3. Encourage the children to think of other occasions when they could use Peter Parrot's program.
4. Have the students complete their self-monitoring forms.

Lesson Format

Part I

Lesson Review

(A) Teacher:

"In order to help us do better work in school, Peter Parrot has taught us that something will help us. What is it?"

(B) Teacher:

"Therefore, because Peter Parrot believes that self-talk is so important, he has made 5 rules to help us do our school work. Who can tell me what they are?"

(C) Teacher:

"These rules follow a certain order or sequence with each rule having a very important job. Prior to beginning any school work (i.e., that is writing or answering question), what rules should you use?"

Part II

(D) Teacher:

"Today we are going to play a game which will give you more practice with how to use self-talk to guide your behavior. This is important because we use self-talk when we use Peter Parrot's program. The game is called Robot. You are to pretend that you are robots and that I am the control center which tells you what to do. Before you can move, you must repeat the instruction that I give you to yourself. If you do this properly, you will always make the correct move.

Teacher can give a variety of instructions altering the tempo (from slow to fast). If the child makes a mistake, he/she will be asked to sit down. This is done for 3 minutes. Students can then be selected to give the instructions.

(E) Teacher:

Ask questions about the activity. "Did talking to yourself help you with the game? How did it help?"

Part III

(F) Teacher:

Inform the children: "We are now going to do a different exercise. Because we know that Peter Parrot's program helps us to do things better, we are going to make a list of when we might want to use self-talk and Peter Parrot's program."

(G) Teacher:

Put transparency on overhead projector which has the 3 headings listed:

A. At school

B. At home

C. At play

(H) Teacher:

Divide the class into two teams and have them take turns giving an answer for any category. Give one point for each response given. The team with the most points wins.

Student Responses:

At Home

Fixing my bike, helping dad fix car, doing dishes, vacuuming, cooking. If there is an emergency (fire), doing homework.

At School

Math, reading, crossword puzzles. If the questions are hard learning new work, following instructions.

At Play

Control my hitting when I'm learning a new game, jumping off things, playing checkers.

(I) Teacher:

Ask the students when they might not want to use Peter Parrot's program. If students have difficulty providing answers, give them some suggestions.

I. When tasks or jobs are very easy.

a. open a door

b. close a window

c. pick up a pencil

II. When a response is automatic.

a. scratching a your boby if it is itchy

III.

When a quick decision needs to be made.

a. playing a sport (i.e., pass a puck)

Part IV

(J) Teacher:

"Today, I'm going to give you another worksheet to do. I'll remind you before you start to use Peter Parrot's program to help you." Hand out worksheet - "Word endings."

(K) Teacher:

Give the students the instructions for completing the task.

(L) Teacher:

Make sure that students have self-monitoring forms. (Set timer to ring.)

(M) Teacher:

When timer rings, have students fill in form.

(N) Teacher:

After students have finished doing the worksheet, have the students model cognitively how they used Peter Parrot's program to complete the task.

Note: Point out to the students the:

1. different plans used
2. importance of checking work
3. the amount of self-talk used

(O) Teacher:

Give students feedback as to the quality of their self-verbalizations.

(P) Teacher:

Put transparency of worksheet on overhead projector and have students correct their work from answers provided.

Evaluation:

1. The number of students left standing after playing the Robot Game.
2. The number of activities listed by the students which illustrate when they could use Peter Parrot's program.
3. The competency in which the children use Peter Parrot's program to complete the worksheet. Children's scores will be tabulated.
4. The quality and quantity of self-talk reported on the self-monitoring forms.

LESSON PLAN 5

Find below the missing endings. Cut and paste each one where it belongs in the story.

Sally was play_____ with her friend, Mary. They were dress_______ their doll_____. Sally had the tall_______ doll. Mary's doll was small______.

Soon, Sally's little brother Billy came out to play. He want______ to play too, but the girl_____ said, "Go away!" Billy was sad, but he walk______ away slow_______.

ing	s	ed
est	ed	er
ly	ing	s

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #6

Motivation Activities:

1. Children who complete the self-monitoring form will receive a stamp acknowledging good work.
2. Divide students into two teams in order to determine which team can provide the greatest number of plans.

Teaching Objectives:

1. To provide students with practice in developing a variety of plans for the same task.
2. To provide students with an opportunity to use Peter Parrot's program on tasks of reasoning ability.
3. To have the students learn when they know and when they don't know if their plan is working.
4. To continue to have students self-monitor their self-talk.

Materials:

1. overhead projector
2. worksheet of crossword puzzle
3. stamps for completing self-monitoring form
4. self-monitoring forms
5. alarm clock

How Objectives to be Attained:

1. By having the students engage in two activities which require them to develop a plan in order to complete a job assigned.

    1. Students are to illicit a number of plans for how the teacher could distribute worksheets to the students.
    2. Students are to propose plans for how they could remember what they want to purchase from a store.
2. Have students complete the puzzle using Peter Parrot's program.
3. As a result of completing the crossword puzzle, the students will have an opportunity to determine if their plan is working as the words chosen by them will not fit into the number of spaces provided.
4. Have students sign and hand in self-monitoring forms.

Lesson Format

Part I

Review

(A) Teacher:

"Who can give me some examples of when we could use Peter Parrot's program at home, at school or at play?"

(B) Teacher:

"Are there any occasions when we shouldn't or might not want to use Peter Parrot's program?"

(C) Teacher:

"What game did we learn to play yesterday?"

(D) Teacher:

"How did using self-talk help?"

Part II

(E) Teacher:

Tell students that we are going to play another game. Today our job is to figure out how many strategies or plans we could make for each job that we have to do.

(F) Teacher:

"Put on your thinking caps. How many of you remember that Peter Parrot believes that making a plan or strategy is very important if you are to be more successful at school?"

(G) Teacher:

"Let's divide the class into two teams and we'll see how many plans each team can make for each of the jobs that we have to do."

Note:

Make a scoreboard on the blackboard so that each team can receive a point for each plan they develop. The teams will take turns giving you their plans. No two plans can be identical.

(H) Teacher:

"The first assignment is this; if I wanted to hand out worksheets to the class, how could I do it? Make a plan to tell me how you could get this done."

Note: (Students have developed as many as 24 different plans for completing this task.)

(I) Teacher:

"The second assignment is, if I wanted to remember what I am supposed to buy at the grocery store, how could I help myself remember what to buy?"

(J) Teacher:

After the teams have stopped generating plans, ask them this question. "What did you learn about making plans?"

Student Responses:

1. That a number of different plans can be used to do the same job.
2. Some plans work better than others.
3. People like to use their own plan.

Part III

(K) Teacher:

Inform students that they are going to do a crossword puzzle. "What is a crossword puzzle? You have done them before in school haven't you?"

(L) Teacher:

"I am going to give you a crossword puzzle to do and I would like to have someone show me how Peter Parrot would do this job."

Note:

A transparency of the puzzle is placed on the overhead projector when a student cognitively models how Peter Parrot would complete the crossword puzzle.

(M) Teacher:

Students are asked to give feedback as to how the students performed the task.

(N) Teacher:

The teacher then models covertly how he/she would do the task answering only 2 questions from the crossword puzzle.

(O) Teacher:

Students are queried to ensure that they understand the assignment.

(P) Teacher:

Teacher instructs children to begin working and sets alarm for self-monitoring procedure.

(Q) Teacher:

After students have completed the crossword puzzle the teacher asks students to put their pencils down. The crossword puzzle is corrected with students.

(R) Teacher:

Teacher requests that students explain when they knew if their plan is working.

Student Responses:

1. Not enough letters to fill the empty boxes
2. Too many letters for the number of boxes
3. The words didn't rhyme

(S) Teacher:

Summarize by saying: "You know when your plan is not working if you are making mistakes."

(T) Teacher:

"What should you do if you are making mistakes? The solution to this problem is to review Peter Parrot's rules and make sure that you have followed each rule properly."

1. What am I supposed to do?
2. What do I need to know to do the job?
   i.e., correct spelling of words
   i.e., what the word across means,
   i.e., what rhyming words are, etc.
3. How can I do it?
4. Is my plan working?
5. How did I do?

(U) Teacher:

The students are then encouraged to give feedback as to their responses on the self-monitoring form.

(V) Teacher:

Those students who completed the self-monitoring form when the alarm rang, are given a stamp.

Evaluation:

1. The number of strategies that are generated by the students.
2. The number of mistakes that are made completing the crossword puzzle.
3. The number of students who receive a stamp for completing the self-monitoring form.

LESSON PLAN 6

PUZZLE FUN

Some words sound the same but mean different things.
This puzzle is made of words that sound alike.
Clues are given for each answer.
Write the correct answer in the proper spaces on the puzzle.

ACROSS

2 The number before three: sounds the same as to.
4 To see someone for the first time: sounds the same as meat.
7 A type of boat: sounds the same as sale.
8 A type of fruit: sounds the same as pair.
10 The color of the sky: sounds the same as blew.
11 You use it to see: sounds the same as I.

DOWN

1 The heading of a letter: sounds the same as deer.
3 What you do with a pencil: sounds the same as right.
5 A monkey swings by it: sounds the same as tale.
6 A wild furry animal: sounds the same as bare.
7 What you do with your eyes: sounds the same as sea.
9 The color of anger: sounds the same as read.

LESSON PLAN 6

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #7

Motivation Activities:

Students who cognitively model Peter Parrot's program to read a passage will use the Peter Parrot puppet.

Teaching Objectives:

1. To teach children that Peter Parrot's program can be used when doing reading assignments.
2. To have students develop a plan for improving their ability to complete reading assignments.

Materials:

1. overhead projector
2. worksheets
    1. What's Missing?
3. transparencies
    1. What Kind of Song is That?
    2. What's Missing?
4. Peter Parrot puppet
5. self-monitoring forms
6. alarm clock

How Objectives to be Attained:

1. Children will practice using Peter Parrot's program when reading a short story.
2. By having students brainstorm as to what types of plans

could be used to improve their reading.

Lesson Format

Part I

Review

(A) Teacher:

"Yesterday we divided into two teams and played some games. What were we trying to do with each job that we had?"

(B) Teacher:

"What did we learn about making plans?"

(C) Teacher:

"Today you are going to develop a plan on how to improve your reading. What things could you do to improve your readings?"

Student responses:

3. Asking ourselves questions like:
    1. Who is the story about?
    2. Why did it happen?
    3. When did it happen?
    4. Where did it happen?
    5. What happened?
4. Sometimes you can figure out what a word is by looking for clues.
    1. Sometimes pictures are there which give you hints.
    2. Sometimes when you known some of the words in the sentence except one, you can figure out what the word is by the meaning of the sentence.

Examples

Peter picked up the picture and hung it on the wall.

The boy hit the ball with a bat.

Sally is afraid of ghosts.

3. You can break big words into smaller words that you know.

i.e., kitten

4. You can try sounding out words that you don't know.

(D) Teacher:

Teacher places transparency of the story "What Kind of Song is That?"

(E) Teacher:

Demonstrate to students through cognitive modeling how:

1. looking at picture(s) can be helpful
2. breaking bigger words into smaller words that you already know can improve reading
3. Sounding difficult words can help
4. Figuring out what an unfamiliar word might be through the meaning of a sentence
5. Asking questions to yourself about the story can be helpful

Part II

(F) Teacher:

Pass out handout to students entitled "What is Missing." Give them instructions as to what is to be done.

(G) Teacher:

Set timer in order that self-monitoring forms can be completed by students. Children should also be reminded to use Peter Parrot's program for reading as it can help them to read better.

(H) Teacher:

After the students have had 15 minutes to complete handout, the teacher can have students use cognitive modeling to demonstrate their plans for improving their reading. (The children can use the Peter Parrot puppet at this time.)

(I) Teacher:

Ask students to give feedback about how they figured out what some of the difficult words were.

Evaluation:

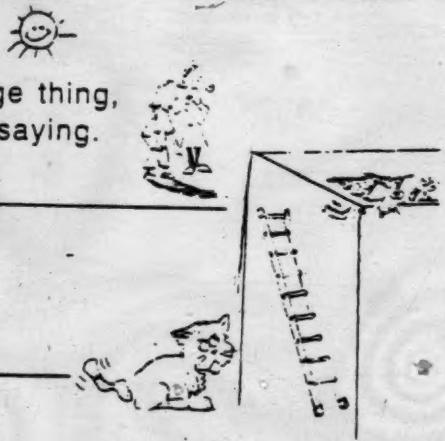
1. The extent to which children are able to model using Peter Parrot's program to improve their reading.
2. The number of correct responses that the children make on the reading comprehension handouts.

LESSON PLAN 7

What's Missing?

Denise Avery.

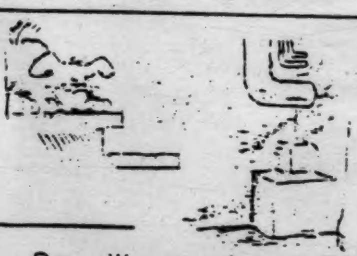
Tommy kept wishing
That he could go fishing.
But when Tommy went fishing
Tommy caught nothing.
What's missing?__________



It was quite late in the afternoon
when Molly and Sue were playing.
Suddenly they noticed a very strange thing,
But I couldn't hear what they were saying.
What's missing?__________

Tad the sad cat spies a fat rat,
But he cannot catch that.
He just sits on his mat.
What's missing?__________

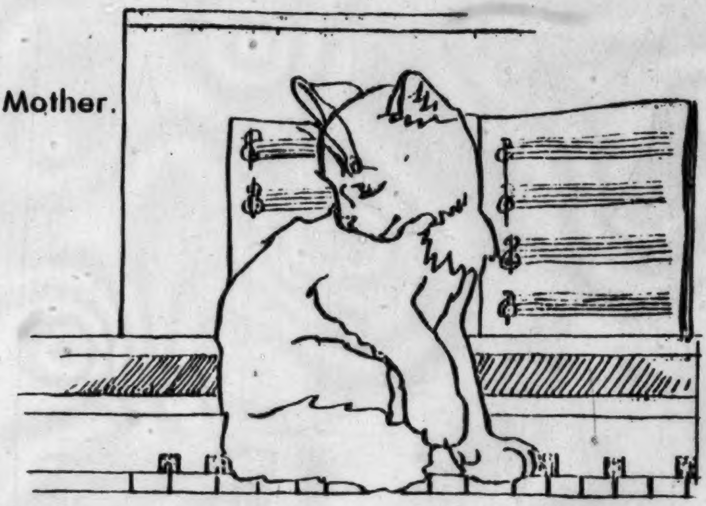
See that young girl down the road?
She's hopping around like a toad.
She's tearing her hair.
She growls like a bear.
What's missing?__________



Oh, little puppy,
You'd better not go there!
I know it looks lovely
But you must take care.
What's missing?__________

When writing this story
I ran out of letters.
So will you please fill in
What's mi si g?

What kind of song is that?



"That is a beautiful song, Jack," said Mother.
"I like to hear you play the piano.
You are doing very well.
Oh dear!
What do I hear now?
What kind of song is that?
That sounds terrible!"
"Come and look, Mother," laughed Jack.
"I'm not playing that song.
My kitten is playing the piano!"

1. Draw a line under another good name for this story:
   a. Surprise piano player b. Jack learns a new song

2. Circle one:
   The kitten played a good song. (yes, no)

3. Fill in the blank:
   Jack laughed when he saw the___________.

4. Draw a picture of the funny kitten,

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #8

Motivation Activities:

1. Give ink stamps to those students who use appropriate self-talk during grouping exercise.
2. Play Simon Says game
3. Conduct an experiment with the children as to how self-talk can help control their behavior

Teaching Objectives:

1. Students will learn how to classify or group words
2. Students will learn that Peter Parrot's program can help them on reasoning ability tasks
3. Students will learn that using self-talk (repeating instructions given to them) will help them to learn and follow instructions better.

Materials:

1. overhead projector
2. transparency (A) Word Grouping
3. Worksheets (A) Word Grouping
4. Self-monitoring forms
5. Timer
6. Ink stamps

How Objectives to be Attained:

1. Students will participate in two activites which will require them to put words into groups
2. Students will engage in cognitive modeling and provide

self-reports about their use of Peter Parrot's program to complete a task requiring reasoning ability.

3. Students will engage in an experiment to determine if self-talk helps them to follow instructions.

Lesson Format

Part I

Review

(A) Teacher:

"Yesterday we learned that there are certain things we can do to improve our reading and understanding of what we have read."

One thing that we can do is look for clues. What clues can we use?

1. pictures
2. sounding words out
3. context of the sentence
4. breaking big words into smaller words

Our ability to read can also be improved by doing what?

Asking ourselves questions about:

What the story was about

Who was the story about

When did it happen

Why did it happen

Where did it happen

How did it happen

Part II

(B) Teacher:

"Today we are going to learn how to use Peter Parrot's program to do another type of task. Our job will be to learn how to put things into groups or what is sometimes called categories. What is a group?"

Student Responses:

1. Things which have similar characteristics
2. Some part of each thing is the same

(C) Teacher:

Take blank transparency and have students give you a list of words that belong to the category or group of:

1. Things that bounce
2. Things that grow
3. Things that turn

(D) Teacher:

Pass out worksheets on grouping and have children begin to classify the words into one of the 5 groups assigned.

(E) Teacher:

Remind students to use Peter Parrot's rules. Set timer and have children fill in self-monitoring forms when alarm rings.

(F) Teacher:

Once tasks have been completed, teacher will ask students to cognitively model how they used Peter Parrot's program to complete the worksheet.

Note: Give ink stamps to those students who use Peter Parrot's program appropriately.

(G) Teacher:

After several modeling examples, students will be asked to comment about:

1. The types of plans used
2. Amount of self-talk used
3. The quality of the self-talk
4. How the use of self-talk helped or didn't help

Teacher can place transparency of correct responses on the overhead projector in order that students can correct their work.

Part III

(H) Teacher:

"Do you remember that some of you mentioned that you thought that if you used self-talk after hearing an instruction from the teacher that you would probably remember what he/she said?"

(I) Teacher:

"We're going to try an experiment today to see if using self-talk really does help.

Let's play Simon Says. Some of you have difficulty playing because you don't listen carefully. Well, if you use self-talk, you'll get to hear it twice instead of just once.

What I want you to do is when we play the game this time, you repeat the instruction to yourself first, BEFORE you move."

Practice Instructions:

"Somon says, stand up. Did you repeat the instruction? Simon says, sit down. (Did you repeat the instruction?)."

Play game with children until no one is left standing.

(J) Teacher:

Then play the game asking children not to use self-talk while they play.

(K) Teacher:

Discuss with the children how the two games differed.

(L) Teacher:

Have children provide feedback as to the effectiveness of using self-talk.

Evaluation:

1. The ability of students to put words into their appropriate groups on their worksheets.
2. The responses given by the students on their self-monitoring forms and through cognitive modeling demonstrations will represent their ability and preference for using Peter Parrot's program on reasoning tasks.
3. The superior performance of students to play Simon Says when using self-talk to guide their behavior as opposed to their performance when self-talk is not used.

LESSON PLAN 8

__ hail
__ hat
__ calf
__ steak
__ hammer
__ banana
__ rain
__ jacket
__ snake
__ grapes
__ saw
__ cape
__ apples
__ snail
__ cat
__ spade
__ ham
__ whale
__ scarf
__ rake

__ eggs
__ deer
__ sleet
__ wrench
__ seal
__ bear
__ meat
__ dress
__ rainy
__ jack
__ sweater
__ beaver
__ bread
__ tea
__ breeze
__ belt
__ peach
__ jeans
__ windy
__ elephant

__ wind
__ milk
__ pig
__ sunshine
__ lion
__ chilly
__ tiger
__ knife
__ rabbit
__ icing
__ shirt
__ lime
__ spider
__ fly
__ scissors
__ nightgown
__ mitts
__ lightning
__ cricket
__ mice

__ goat
__ shoes
__ shovel
__ fog
__ robe
__ oranges
__ fox
__ hoe
__ frost
__ toad
__ pop
__ snow
__ toast
__ horse
__ cold
__ socks
__ cookies
__ spoon
__ hose
__ coat

__ thunder
__ juice
__ button
__ pulley
__ turtle
__ butter
__ sunny
__ sugar
__ mule
__ buffalo
__ mustard
__ mukluks
__ nuts
__ brush
__ plum
__ ruler
__ ice cubes
__ puppy
__ skunk
__ rubbers

Write the correct number beside each word.

1 Animals
2 Clothes
3 Food
4 Tools
5 Weather Words

"Peter Parrot"

Lesson Plan #9

Motivation Activities:

1. Play grocery store game.
2. Give students stickers.

Objectives:

1. Students will practice using self-talk as a means of improving their ability to recall instructions.
2. Students will review Peter Parrot's program on how to improve their reading.
3. To evaluate the students' ability to use self-talk while doing their seat work.

Materials:

1. Transparency of
    1. "A Backyard Rocket Ship"
    2. "What am I"
2. A number of grocery store products (approximately 10) will be taken to school.
3. Worksheets for students
    1. Backyard Rocket Ship
    2. A Noise in the Night
    3. What am I?
4. Self-monitoring forms
5. Clock
6. Stickers

How Objectives to be Attained:

1. Students will be given a list of products to purchase at

the store.

2. Several short passages will be read by the students.
3. Self-monitoring forms will be collected and evaluated.

Lesson Format

Part I

Review

(A) Teacher:

"Yesterday we learned that using self-talk can improve our ability to follow instructions. What game did we play? How did using self-talk help you to follow instructions and play the game better?"

(B) Teacher:

"Today we are going to play the Grocery Store game. This game will give us another example of how the use of self-talk will improve your ability to follow instructions and remember things. Here's how the game works. I give you the instruction (only once) to go and pick up 3 things at the store. Your job is to be able to remember what you were supposed to buy. You will go to the store (a desk in the corner of the room which has all the goods on it) and collect what you were asked to purchase."

(C) Teacher:

Select several students at random to play the game. Gradually increase the number of goods to be purchased (i.e., 3, 4, 5, etc.).

(D) Teacher:

After a number of children have had an opportunity to play, ask them to explain how using self-talk helped.

Part II

(E) Teacher:

"Two days ago we talked about how you could improve your ability to read. Who can tell me what things you can do to help yourself read better?"

Students responses:

1. Asking yourself questions.
2. Using clues.
3. Underlining difficult words.

(F) Teacher:

"Today I am going to give you some short stories to read in order that you can practice using Peter Parrot's program and some of his strategies for improving your ability to read."

(G) Teacher:

Model cognitively how to use Peter Parrot's program to read the short story, "A Backyard Rocket Ship."

(H) Teacher:

Students then cognitively model Peter Parrot's program while reading the short story, "A Noise in the Night."

(I) Teacher:

The teacher and students give feedback as to how well the students used Peter Parrot's program when reading. If the students are having problems, the teacher can ask these questions:

1. Were the pictures helpful in telling you what the story might be about?
2. Did the questions how, when, who, why and what help you to understand the story?
3. Were you able to figure out difficult words from the meaning of the sentence?
4. What other clues did you use to help you to read better?

Part III

(J) Teacher:

Ask the students to read and answer the questions from the handout, "What am I?" Remind the students that using Peter Parrot's program would improve their ability to read the paragraphs.

(K) Teacher:

Set the timer in order that the self-monitoring forms can be completed.

(L) Teacher:

Have students fill in self-monitoring forms after the alarm rings. While the students are completing their seat work, collect the self-monitoring forms to evaluate the individual students' responses. Stickers will be given for successfully completing the self-monitoring forms.

(M) Teacher:

Upon completion of the handout, the teacher will correct the students worksheets.

(N) Teacher:

Ask each student to explain what plan they used to get the correct answer.

Evaluation:

1. The number of goods that the students are able to accurately recall when playing the Grocery Store game.
2. The ability of the students to use Peter Parrot's program on reading passages.
3. The quality and relevance of the responses written by the students on their self-monitoring forms.

A backyard rocket ship

John and Frank built a rocket.
They used boxes and a big can.
They used wheels and old tires.
"What is that?" asked Jane and Mary.
John said, "This is our rocket ship.
We are going to the moon."
"You boys are not going anywhere in that,"
laughed the girls.
"That rocket ship won't go anywhere!"
"Maybe not," said Frank.
"But we can play that it's a rocket.
We built it and we can have fun with it.
And maybe someday we will go to the moon.
Someday John and I may take a real rocket to the moon!"

1. Draw a line under another good name for this story:
   a. A moon out of boxes b. Build something to pretend with
2. Circle one: The boys might go to the moon______________. (tomorrow, someday)
3. Name two things the boys used to make the rocket ship.
4. What do you like to pretend? Draw a picture.

A noise in the night

"Wake up, wake up, Pat," said Lucy.
"I hear something outside our tent!
It is kicking over cans.
And it is getting into our food."
"I bet it's a bear!" said Pat.
"A big bear has come out of the woods.
It has come to eat our food!"
Lucy said, "I'm going to get my flashlight.
I'm going to peek out and see what it is.
Gosh, are we lucky, Pat!
It's only a racoon!
A funny little racoon who is hungry!
Anyway, there are no bears around here.
There are no bears in these woods."

1. Draw a line under another good name for this story:
   a. Rainstorm in the night   b. What's out there?

2. Circle one:
   Pat and Lucy must be (at home, on a campout).

3. Before she looked out, Lucy went to get her ______________________.

4. Do you like to go camping? Draw a picture of your family on a campout.

LESSON PLAN 9

I look something like a cat but I am very big. I live in a zoo or in the jungle. I have sharp claws and I growl and roar. You should not come close to me.

What am I? ________________

Would I be a good pet? ______

A farm is my home. I am bigger than the dog but not as big as the cow. I eat grass in the fields and sleep under the big trees. I have a wool coat that the farmer clips and sells so you can have warm things to wear in winter.

What am I? ________________

Would I be a good pet? ______

I am a bird that can talk. I am big for a bird and my feathers are bright colors. I like people and I like to live in their houses. Sometimes I play tricks on people. I call to them and they are surprised to be called by a bird.

What am I? ________________

Would I be a good pet? ______

I live in the park or in the forest. I like to climb trees and sit up on a branch eating nuts. I am a small animal that could sit on your hand. I am brown and have a stripe on my back. Sometimes I let people I know feed me nuts. But I usually run away.

What am I? ________________

Would I make a good pet? ______

I am small and brown and furry. I am fat and cuddly now because I am just a baby. When I make a noise it is just a little "Yip. Yip." But soon I will grow. I will bark loudly and run fast. I will want to play with everyone I meet.

What am I? ________________

Would I be a good pet? ______

elephant
chipmunk
lion
puppy
cow
parrot
horse
bear
kitten
sheep
budgie
gerbil

"Peter Parrot"

A Classroom Self Instructional Training (S.I.T.) Program

Lesson Plan #10

Motivation Activities:

1. Build a series of steps (25) and inform students that this becomes the stairway to success. If the class climbs the stairway, each class member gets a certificate for successfully completing the Peter Parrot program.
2. During cognitive modeling activities, children will use the Peter Parrot puppet.

Objectives:

1. To provide the students with an opportunity to review the basic principles of Peter Parrot's program.
2. To have the students practice using Peter Parrot's program across a variety of tasks.

Materials:

1. Chart or diagram with 25 steps.
2. Student certificates of achievement.
3. Transparencies of
    1. Match to Sample Task
        1) Airplane
    2. Mathematics Sheet
    3. Word Scramble
    4. Which takes more time?
    5. Do you remember?
    6. Certificate of Achievement

4. Overhead projector
5. Peter Parrot puppet

How Objectives to be Attained:

1. As a class, children will be asked to climb successfully the stairway to success.
2. Children will use cognitive modeling to demonstrate how Peter Parrot's program will be used to complete several tasks.

Lesson Format

(A) Teacher:

Explain to students how they can climb the stairway to success, (i.e., for each correct answer given during the review, a step is climbed) Class members will receive a Peter Parrot certificate for the successful climb.

Begin by asking the students to answer the following questions:

Teacher:

"What does Peter Parrot believe is important for children to use?"

Answer: Self-talk.

Teacher:

"Who can explain what self-talk is?"

Answer: Talking to yourself (in your mind).

Teacher:

"Why is talking in your mind or to yourself better to use in class than talking aloud?"

Answer: You won't disturb other children.

Teacher:

"During the past two weeks we have been learning to use self-talk. How does or has using self-talk helped you?"

Answer:

1. I don't make as many mistakes.
2. I guide my behavior, i.e., I tell myself what to do.
3. I make myself stop and think first.
4. I give myself a plan.

Teacher:

"Because using self-talk is so helpful to boys and girls, Peter Parrot has made a program which gives children 5 rules to follow when using self-talk. Tell me what the first rule is? What the second rule is? Etc."

One point is given for each correct answer (total of 5).

Teacher:

1. "Who can tell me why rule #1 is important?"
2. "Why rule #2 is important?"

Continue until the significance of each of the 5 rules is discussed. One point is given for each correct answer (total of 5).

Teacher:

Before we ever answer or begin to write an answer to a question, what Peter Parrot rules do we use?"

Answer: The first three rules.

Teacher:

"Who can tell me when we could use Peter Parrot's rules?" Attempt to have children provide 8 examples. Score 1/2 point for each correct answer (total of 4).

Teacher:

"When might it not be necessary to use Peter Parrot's rules?"

Answer: When we do an automatic event or response, i.e., turn a door knob, walk.

Teacher:

"Is there only one plan for each job that we have to do?"

Answer: No.

"Do we all like to use the same plan?"

Answer: No

"Why is it important for you to use a different plan?"

Answer:

1. Some jobs are more difficult for some than others.
2. Some of us like to use more self-talk.

Teacher:

"If a job or some work is very difficult to do, would you need to use more or less self-talk?"

Answer: More self-talk.

Teacher:

"How do you know if your plan worked or not?"

Answer: Start to make mistakes.

Teacher:

"What should or can you do if you have made mistakes?"

Answers:

1. Make a new plan.
2. Review Peter Parrot's 5 rules.

Teacher:

"How does self-talk help to improve your ability to follow instructions?"

Answers:

1. You get to hear instruction two times.
2. Teaches you to practice repeating (rehearsal) what is said

   as a means of improving memory.

Teacher:

"Peter Parrot taught us that there are several things that you can add to your plan which can help you to improve your reading. What things can you do?"

Answer:

1. Ask yourself questions about the story.
2. Look for and use clues.
    1. use pictures
    2. sound difficult words out
    3. use context
    4. break big words into smaller familiar words

Note: For part B, one point for each correct answer.

TOTAL TEST SCORE ..../32

If the class obtains a score of 25 or greater, distribute certificates of achievement.

Part II

Cognitive Modeling Review and Assessment

During cognitive modeling exercises, students are allowed to use puppet of Peter Parrot.

Teacher places match to sample task of airplane on the overhead projector. (Instruction for exercise?)

Have a student demonstrate how to use Peter Parrot's program to successfully complete the task.

(C) Have the students as a group, practice using and hearing themselves use self-talk.

By fading out the following response to eventually become covert.

"I will do better in school because of Peter Parrot's program."

(D) In order that a large number of the students can have an opportunity to demonstrate their ability to use Peter Parrot's program, the following activities can be assigned for students to cognitively model:

1. Arithmetic worksheet
2. Scrambled words
3. Which takes more time?
4. Do you remember?

NOTE: Students and the teacher are encouraged to give feedback about the quality and quantity of self-verbalizations used, types of plans used, effects of task difficulty, etc.

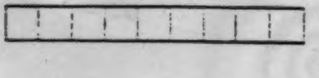
Evaluation:

1. Students will be able to successfully climb the stairway to success.
2. The ability of students to successfully demonstrate using Peter Parrot's program to do a number of tasks.

LESSON PLAN 10

LESSON PLAN 10

Fill in the blanks.



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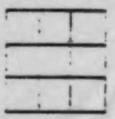
How many wide? ______

How many in all? ______



How many high? ______

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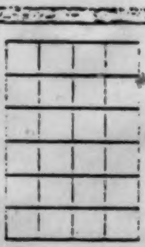

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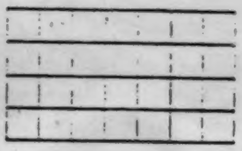
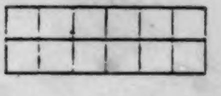


How many high? ______

How many wide? ______

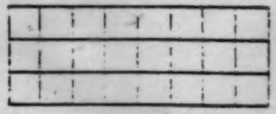
How many in all? ______



How many high? ______

How many wide? ______

How many in all? ______



How many high? ______

How many wide? ______

How many in all? ______

LESSON PLAN 10

BODY LANGUAGE

In each of the words below, some letters have been left out. The missing letters spell the name of a part of the human body. Can you figure out each word? To help you, the "missing" body parts are listed in the Word Box. The first one has been done.

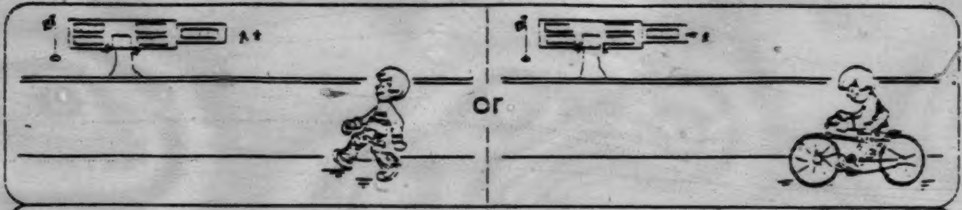
1. n e c k lace
2. _ _ _ _walk
3. toma_ _ _ _
4. h_ _ _
5. _ _ _ _ward
6. _ _ _ _n
7. b_ _ _
8. _ _ _ _ball
9. f_ _ _ _
10. s_ _ _

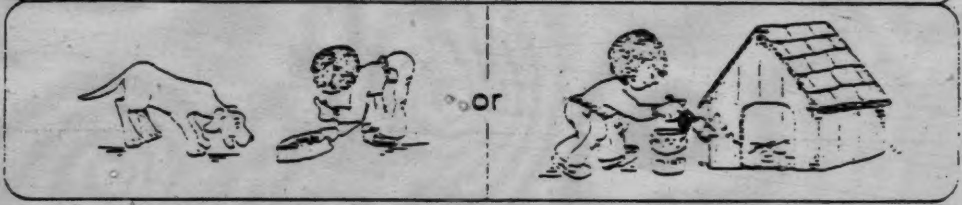
WORD BOX

neck
arm
foot
ear
toes
lip
brow
back
lash
side

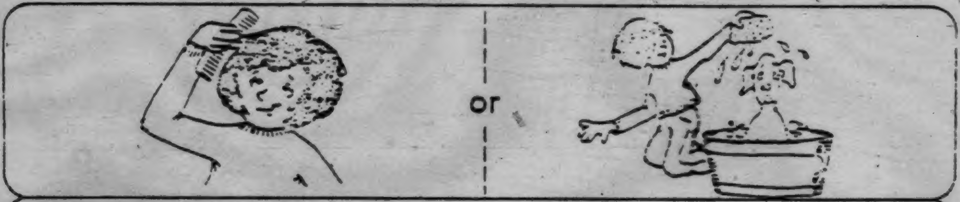
LESSON PLAN 10

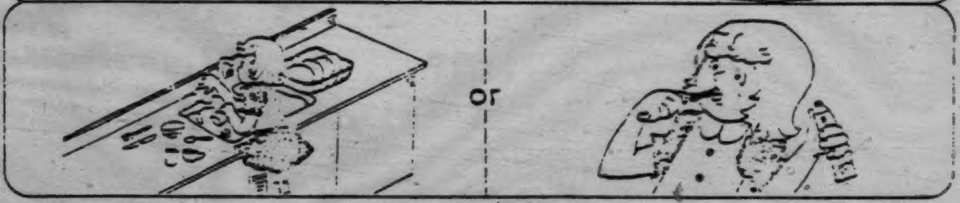
Which takes more time?





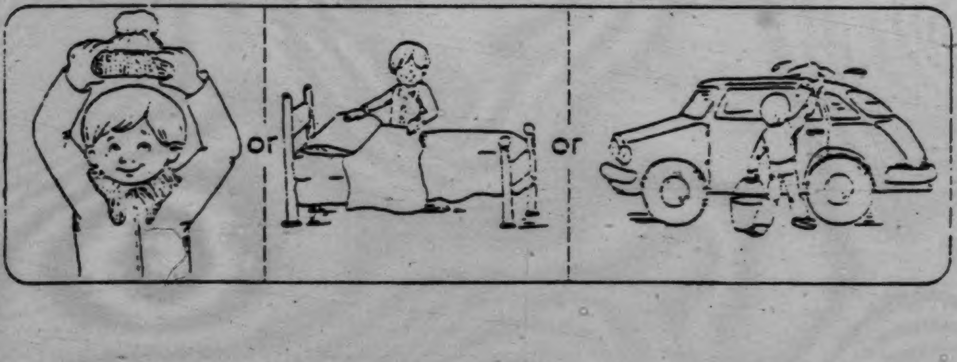
Which takes less time?





Which takes the most time?

Which takes the least time?



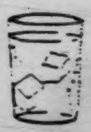
LESSON PLAN 10

A. Which is heavier?

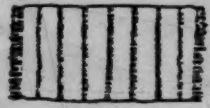
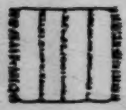
Which holds more?

B. Which is colder?

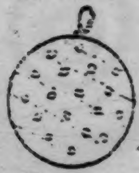
Which is hotter?



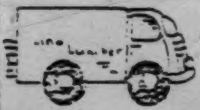
C. Which covers more?

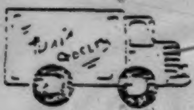



Which covers most?

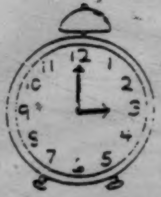


D. Color the fifth truck. Loop the third truck.

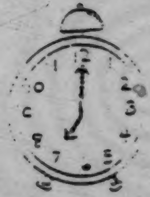




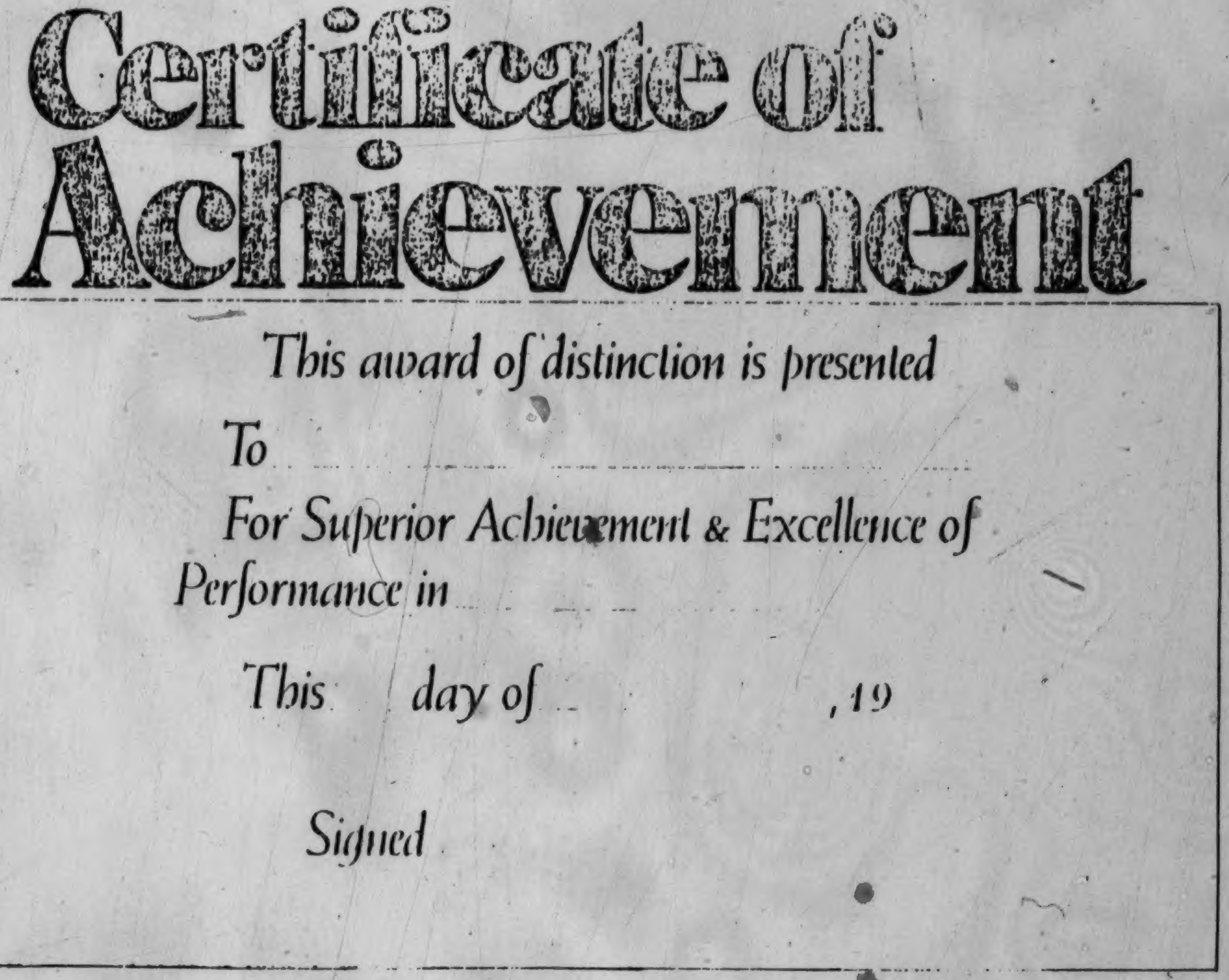
E. It is ☐ o'clock.



It is ☐ o'clock.



LESSON PLAN 10



Certificate of Achievement

This award of distinction is presented

To ....

For Superior Achievement & Excellence of Performance in ....

This   day of   , 19

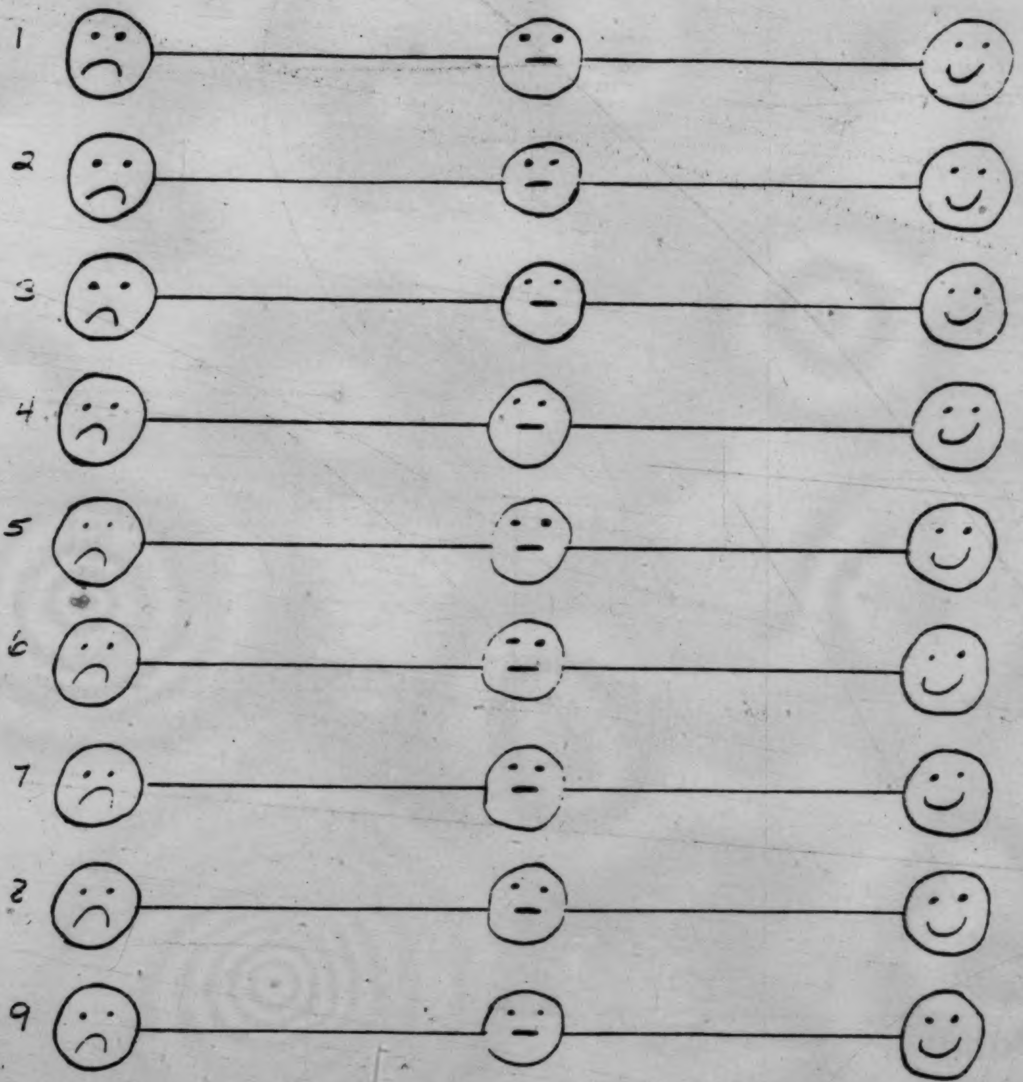
Signed

Appendix B

Student Evaluation Forms (Happy Face and Standard Form)

STUDENT'S FORM

Name ______________________



STUDENT'S FORM

Name ____________________

1	1 Really Disagree	2 Disagree	3 Not sure	4 Agree	5 Really Agree
2	1 Really Disagree	2 Disagree	3 Not sure	4 Agree	5 Really Agree
3	1 Really Disagree	2 Disagree	3 Not Sure	4 Agree	5 Really Agree
4	1 Really Disagree	2 Disagree	3 Not Sure	4 Agree	5 Really Agree
5	1 Really Disagree	2 Disagree	3 Not Sure	4 Agree	5 Really Agree
6	1 Really Disagree	2 Disagree	3 Not Sure	4 Agree	5 Really Agree
7	1 Really Disagree	2 Disagree	3 Not Sure	4 Agree	5 Really Agree
8	1 Really Disagree	2 Disagree	3 Not Sure	4 Agree	5 Really Agree
9	1 Really Disagree	2 Disagree	3 Not sure	4 Agree	5 Really Agree

Appendix C

Teacher Evaluation Form

"Peter Parrot"

Teacher Evaluation Form

1. The lesson plans were easy to follow.

1	2	3	4	5
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

2. I believe that I could teach these lessons.

1	2	3	4	5
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

3. I would rate the overall quality of the lesson plans to be:

1	2	3	4	5
Poor	Below Average	Average	Above Average	Excellent

4. I found Peter Parrot's lessons appropriate for classroom use.

1	2	3	4	5
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

5. I would recommend these lesson plans to another teacher.

1	2	3	4	5
Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree

Appendix D

Self-Report Assessment Procedures

Self-Report Assessment Procedures

I Give the child the instructions for doing the M.F.F. test.

II After giving the child the instructions to the M.F.F. say to the child "when you have finished playing this game, I am going to ask you some questions about what you were thinking, what was going through your mind while you were figuring out the correct answer."

III (A) The child does the M.F.F. test with latency and error scores being recorded.

PART I

IV (A) "I am now going to ask you some questions about what you were thinking - what was going through your mind while you were playing this game. I know that you will tell me the truth, you look like a little (boy/girl) who would not lie or tell stories so I am sure what you will tell me will be true. It is really important that you tell me the truth because if you do not, I will not be able to help other little boys and girls do better. But when you do tell me the truth, I will be able to help the students in your school." (pause) Then say "Do you understand?"

(B) Turn on V.H.S. and say to the child "Look at the television, See, that is you just starting to play the game."

"Do you see yourself?" pause for child to answer.

(C) The examiner then turns on reel to reel tape recorder.

(D) Examiner immediately says child's full name. i.e. David Brown, "David, I want you to pretend that your mind is like a tape recorder, so that you can tell me out loud so I can hear you, what you were thinking - what was going through your mind while you were playing the game.

(E) David, (use child's name) "Watch yourself on the T.V. (pause) try to remember what was going through your mind - what were you think while you were doing that question there. (Tester points to T.V.) "Tell me out loud so I can hear you."

Note:

1) Let the V.H.S. run for a total of two minutes.

2) After one minute, if the child has not self-reported anything, say, "Watch yourself on the T.V., tell me what is going through your mind; what are you thinking right there (point) as you are answering the question?"

3) If the child starts to self-verbalize while watching the V.H.S., encourage the child to give you additional information by saying, "Can you tell me more?" (Say only 2x's).

(F) At the end of this two minute observation period; score the child into one of the five categories of self-verbalization.

Part II

(A) Take out the M.F.F. test Booklet.

(B) Instruct the child, "remember it is very important that you tell me the truth" (pause)

(C) Open test booklet to question #1 and say to the child - "Tell me, out loud so I can hear you, what were you thinking, what was going through your mind while you were doing this question?" (Give child 20 secs) to repond. (2 x's - can you tell me more).

(D) Repeat step c showing the child question #2. (20 secs.)

(E) Then, repeat the instruction used in C & D for the question that the child had the most number of errors. Note: If question one or two was the question with the most number of errors, choose the question with the second greatest number of errors. (20 secs.)

If the child self-reports any self-verbalizations which are incongruent from what he/she did during M.F.F. testing - code this self-report with an R. (i.e. I did not choose this one because the door was different but actually did during testing.)

Rating of M.F.F. Test Self-Verbalization

Scale 1 2 3 4 5

Rating of 1.

Non self-verbalizer - This is a child who does not demonstrate overtly or self-reports using self-verbalizations of any type to successfully complete the task.

Rating of 2.

Inappropriate self-verbalizer. This is a child who either demonstrates or self-reports using self-verbalizations which are inappropriate for the successful completion of the task.

Rating of 3.

Mixed Self-verbalizer. This is a child who either demonstrates or self-reports using both appropriate and inappropriate self-verbalizations.

Rating of 4.

This is a child who either demonstrates or self-reports using task relevant self-verbalizations which lead to the successful completion of the match to sample task. The number of self-verbalizations does not exceed 5.

Rating of 5.

Highly-Effective Self-verbalizer. This is a child who demonstrates or self-reports using more than 5 task relevant self-verbalizations which lead to the successful selection of the match to sample task. These self-verbalizations will also demonstrate that the child has developed and is using a strategy to successfully complete task. (Note: These self-verbalizations are joined together-coherently. They are not disjointed demonstrating integrated thoughts.)